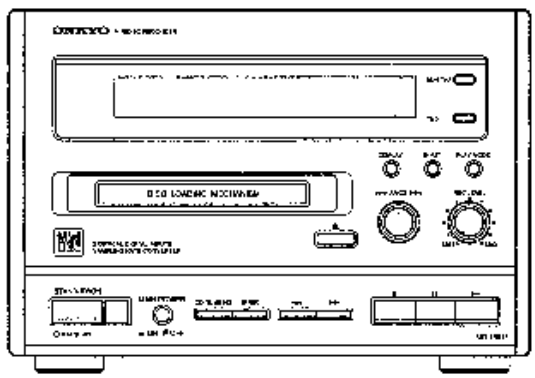
Ref. No.3573

ONKYO® SERVICE MANUAL

MINIDISC RECORDER

MODEL MD-185II



Black and Silver models

UP/ UPT	230V AC, 50Hz
UDT	120V AC, 60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

SPECIFICATIONS

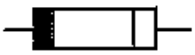
System:	MiniDisc digital audio system
Recording system:	Magnetic field modulation overwrite system
Signal read out system:	Optical non-contact
Recording time:	Max. 74 min. (when using MDW-74)
Number of revolutions:	About 400-900 rpm (constant linear velocity)
Error correction system:	Advanced Cross Interleave Reed-solomon code
Sampling frequency:	44.1 kHz
Number of channels:	2(stereo)
Frequency response:	15 Hz - 18 kHz (±1 dB)
Signal to noise ratio:	98 dB or more when playing
Output level:	1.3 volts r.m.s.
Power supply rating:	AC 230 V, 50 Hz AC 120 V, 60 Hz
Power consumption:	14 watts
Dimensions(W×H×D):	185 × 131 × 299mm (7-5/6" × 5-3/16" × 11-3/4")
Weight:	3.1 kg (6.8 lbs.)

Specifications and features are subject to change without notice.

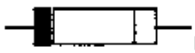
ONKYO®
AUDIO COMPONENTS

SERVICE SAFETY PRECAUTIONS

1. Replacing the fuses



This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.



Ce symbole indique que le fusible utilise est a rapide.
Pour une protection permanents, n'utiliser que des fusibles de meme type.
Ce darnier est indique la qu le present symbol est appose.

Circuit No.	Part No.	Description
F901	252086	0.1 6A-SE-EAWK <P,PT>
F901	252192	0.4A-TSC <DT>
F903	252075	2.5A-SE-EAK

NOTE: <P> 230V model only
<PT> Asian model only
<DT> Taiwanes model only

TABLE OF CONTENTS

Service safty precautions 2
Caution on replacement of optical pick-up 3
Protection of eyes from laser beam during servicing 3
Laser warring label 4
Block diagram 5
Exploded view 6
Exploded view parts list 7
IC block diagrams and descriptions 8
MD mechanism exploded view / Parts list 19
MD mechanism disassembly 21
Adjustment 25
Message list 30
Printed circuit board bottom view 31
Printed circuit board (BD section) 33
Printed circuit board parts list 35
Packing view / parts list 37

CAUTION ON REPLACEMENT OF OPTIONAL PICKUP

The laser diode in the optical pickup block is sensitive to static electricity, surge current and etc. The components are liable to be damaged or its reliability remarkably deteriorated.

During repair,carefully take the following precautions. (The following precautions are included in the service parts.)

PRECAUTIONS

1.Ground for the work-desk.
Place a conductive sheet such as a sheet of copper (with impedance lower than 10Mohm) on the work-desk and place the set on the conductive sheet so that the chassis can be grounded.

2.Grounding for the test equipments and tools.
Test equipments and toolings should be grounded in order that their ground level is the same the ground of the power source.

3. Grounding for the human body.
Be sure to put on a wrist-strap that is properly grounded.
Be particularly careful when wearing synthetic fiber clothes, or air is dry.

4. Select a soldering iron that permits no leakage and have the tip of the iron well-grounded.

5. Do not check the laser diode terminals with the probe of a circuit tester or oscilloscope.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to carefully follow the instructions below when servicing.

WARNING !!

SERVICE WARNING: DO NOT APPROACH THE LASER EXIT WITH THE EYES TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

Laser Diode Properties

Material:	GaAlAs
Waveleaghth:	760-800nm
Emission Duration:	continuous
Laser output:	max. 0.5mW*

* This output is the value measure at a distance about 1.8mm from the objective lens surface on the Optical pick-up Block.

LASER WARNING LABEL

These labels are located on the mechanism.

The label shown below are affixed.

1. Warning label
   This label is location on the chassis.

DANGER —INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION —HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED

ATTENTION —RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ECLENCHEMENT DE SECURITE ANNULE.

VARNING
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDER ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

ADVARSEL
USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.

ADVARSEL

Denne mærkning er anbragt på apparatets højre side og indikerer, at apparatet arbejder med laserstråler af klasse 1, hvilket betyder, at der anvendes laserstråler af svageste klasse, og at man ikke på apparatets yderside kan blive udsat for utilladelig kraftig stråling.

APPARATET BØR KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

Indvendigt i apparatet er anbragt den her gengivne advarselsmærkning, som advarer imod at foretage sådanne indgreb i apparatet, at man kan komme til at udsætte sig for laserstråling.

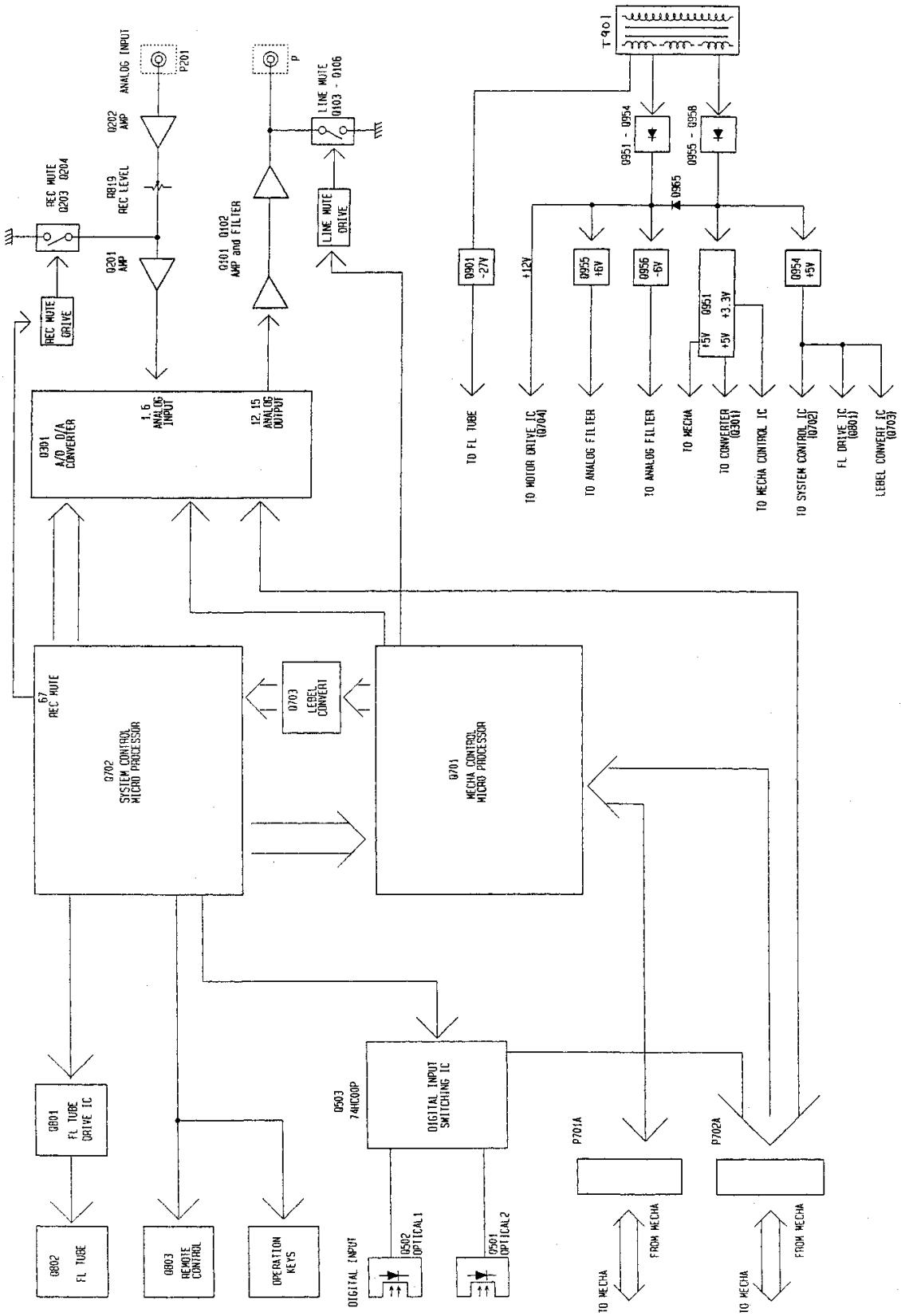
VAROITUS! LAITTEEN KAYTTAMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE

2. Class 1 label
   This label is located on the left side of rear cover.

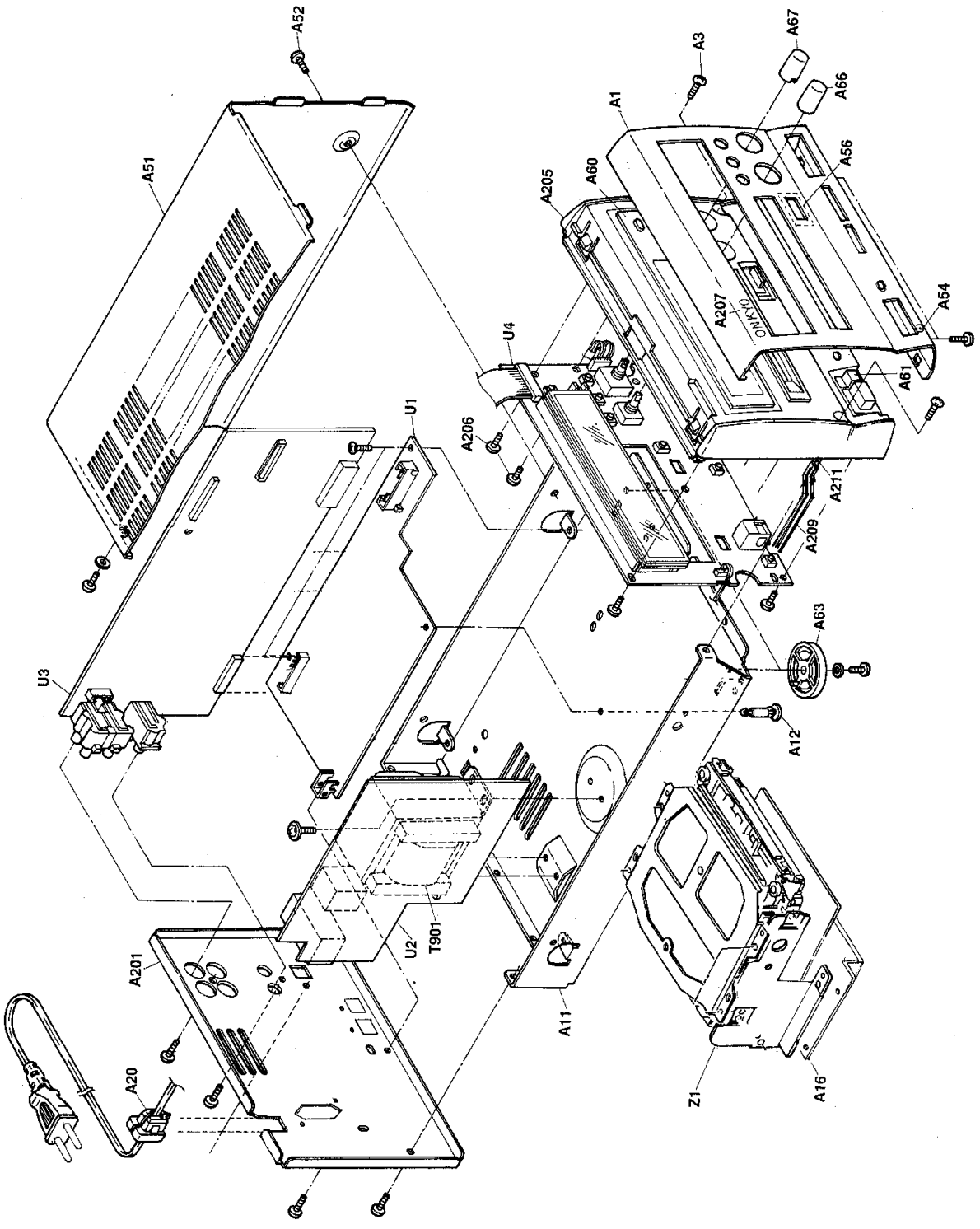
LUOKAN 1
LASERLAITE

KLASS 1
LASER APPARAT

BLOCK DIAGRAM



EXPLODED VIEW



PARTS LIST

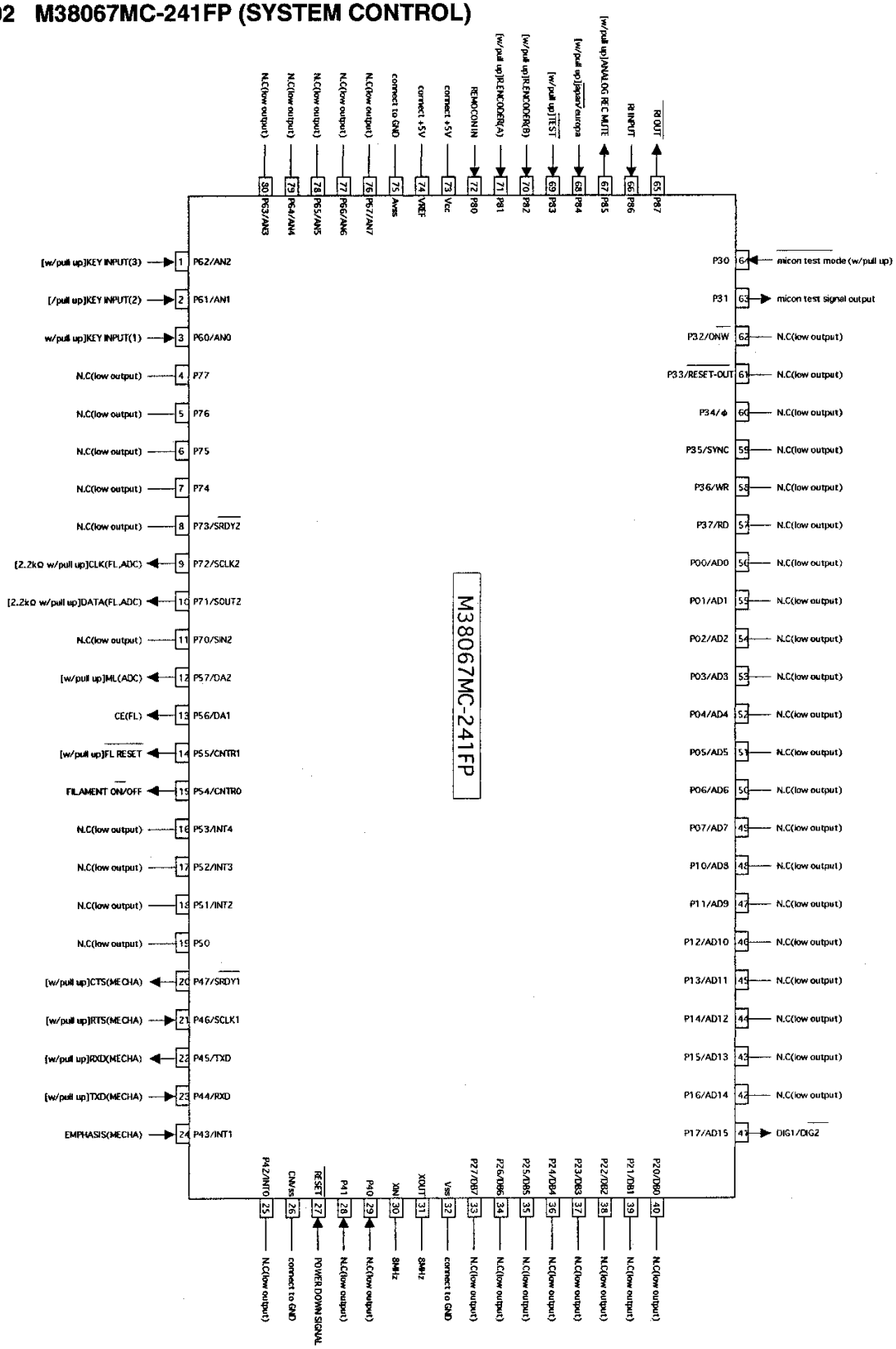
REF. NO.	PART NO.	DESCRIPTION
A1	27110986A	Front Bracket AS <S>
A1	27110987A	Front Bracket AS <B>
A3	838130088	3TTB+8B, Self-tapping screw
A11	27100307A	Chassis
A12	27190266	Holder, KGLS-12RT
A16	27190999A	Holder(M)
A18	27270393	Spacer
A20	27300750	Cord Busing, #2271
A51	28184626A	Top cover <S>
A51	28184625A	Top cover <B>
A52	838230088	3TTB+8B(NI), Self-tapping screw
A52	838430088	3TTB+8B(BC), Self-tapping screw
A53	28141165	Cushion
A54	28198831	Facet
A55	27190970	Holder (FA) <S>
A55	27190969	Holder (FA) <B>
A56	27267892	Guide (OPEN) <S>
A56	27267891	Guide (OPEN) <B>
A59	28133340A	Back plate <S>
A59	28133344	Back plate <B>
A60	28191774	Clear plate
A61	28191712	Clear plate (RE)
A63	27175252-1BY	Leg AS
A66	28325230	Knob (AMC)
A67	28325232	Knob (REC)
A201	27122320	Rear panel <P,PT>
A201	27122319	Rear panel <DT>
A203	838430107	3TTB+10S(BS), Self-tapping screw
A205	27211901	Front panel <S>
A205	27211902	Front panel <B> <P>
A206	801525	3TTB+8B(BC), Self-tapping screw
A206	838130088	3TTB+8B, Self-tapping screw
A207	28135241Y	Badge
A209	27273163A	Joint (POW)
A211	283255359	Knob (POW) <S>
A211	283255492	Knob (POW) <B>
A211	27190803	Holder
A210	830440089	4TTC+8C(BC), Self-tapping screw
A216	830440109	4TTC+10C(BC), Self-tapping screw
Z1	1H348122	MD Mecha AS
E801	2045191512	NCFC5-191512, Flexible flat cable
E802	2045211512	NCFC5-211512, Flexible flat cable
E803	2045291512	NCFC5-291512, Flexible flat cable
E831	253237HIT	⚠ AS-CEE, AC Cord <P,PT>
E831	253192HIT	⚠ AS-UC-6#18, AC Cord <DT>
E832	29362028	Label (ALL) <DT>
E835	838130088	3TTB+8B, Self-tapping screw <DT>
F901	252086	⚠ 0.16A-SE-EAWK, Fuse
F901	252192	⚠ 0.4A-TSC, Fuse <DT>
F903	252075	⚠ 2.5A-SE-EAK, Fuse
T901	2301261	⚠ NPT-1296D, Power transformer <DT>
T901	2301262	⚠ NPT-1296P, Power transformer <P,PT>
U1	1H348599-1B	NAAR-5999-1B, Digital circuit pc board <P,PT>
	1H348599-1C	NAAR-5999-1C, Digital circuit pc board <DT>
U2	1H348502-1B	NAETC-5902-1B, Power transformer pc board <P,PT>
	1H348502-1C	NAETC-5902-1C, Power transformer pc board <DT>
U3	1H348501-1B	NAPS-5901-1B, Power supply circuit pc baord <P,PT>
	1H348501-1C	NAEPS-5901-1C, Power supply circuit pc baord <DT>
U4	1H348500-1B	NADIS-5900-1B, Display circuit pc board <P,PT>
	1H348500-1C	NADIS-5900-1C, Display circuit pc board <DT>
U5	1H348503-1B	NAETC-5903-1B, AC Outlet pc board <P,PT>
	1H348503-1C	NAETC-5903-1C, AC Outlet pc board <DT>

NOTE:
<S> Silver model only
<B> Black model only
<P> 230V model only
<PT> Asian model only
<DT>Taiwanes model only

NOTE: THE COMPONENTS INENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

IC BLOCK DIAGRAM AND DESCRIPTION

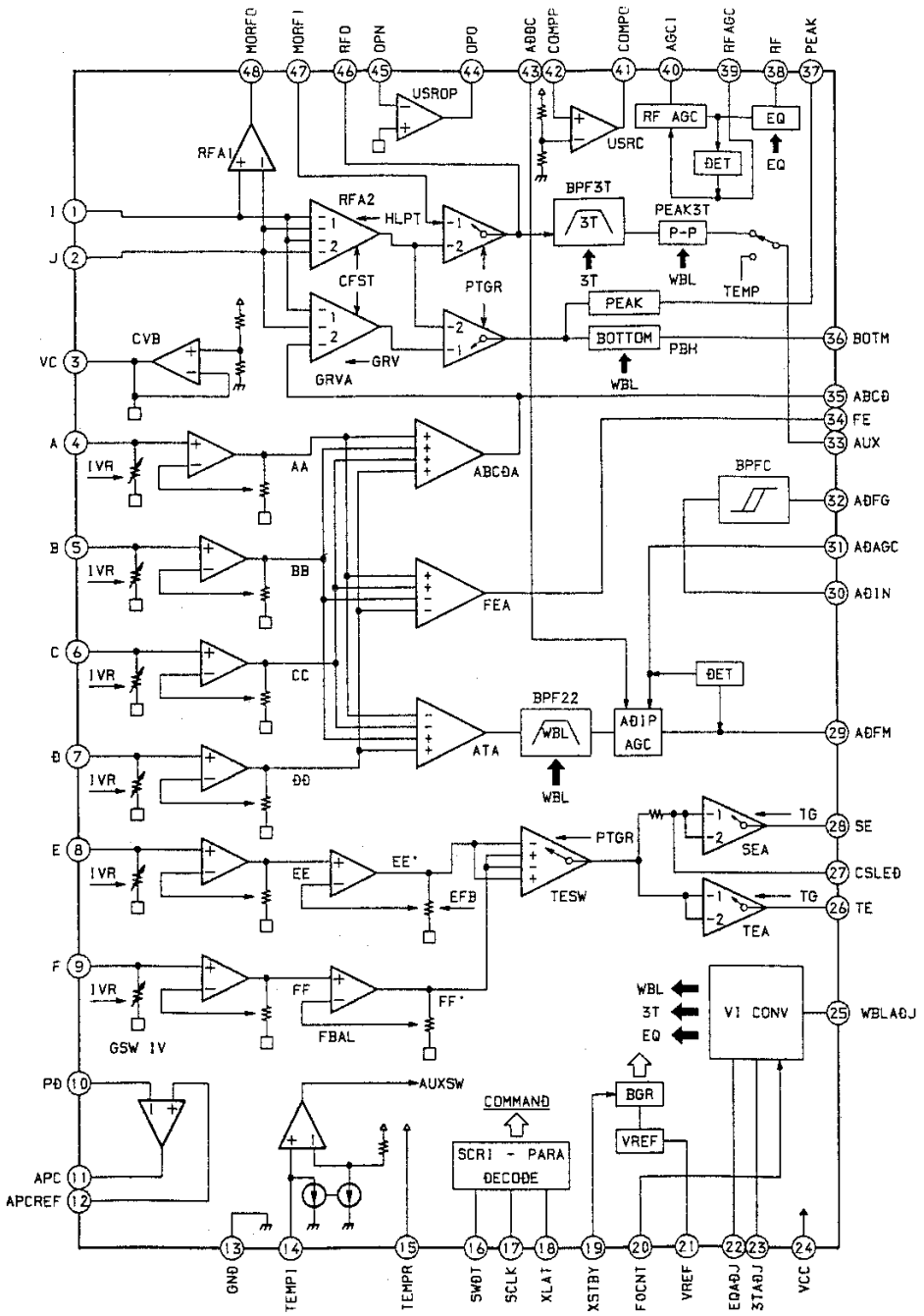
Q702 M38067MC-241FP (SYSTEM CONTROL)



PIN NO.	SYMBOL	DESCRIPTION
1	KEY INPUT(3)	Tact switch input part 3 (A/D input)
2	KEY INPUT(2)	Tact switch input part 2 (A/D input)
3	KEY INPUT(1)	Tact switch input part 1 (A/D input)
4	N.C	not used (Low output)
5	N.C	not used (Low output)
6	N.C	not used (Low output)
7	N.C	not used (Low output)
8	N.C	not used (Low output)
9	CLK	Serial clock output terminal (FL DRIVER,CODEC)
10	DATA	Serial clock data output terminal. (FL DRIVER,CODEC)
11	N.C	not used (Low output)
12	ML	data latch signal output terminal for CODEC.
13	CE	Data latch signal output terminal for EFL DRIVER.
14	FL RESET	Reset signal output terminal for FL DRIVER> (at Low: reset)
15	FILAMENT	Filament power supply control output terminal. (at low: on)
16	N.C	not used (Low output)
17	N.C	not used (Low output)
18	N.C	not used (Low output)
19	N.C	not used (Low output)
20	MECHA CTS	Mechanism microprocessor CTS terminal output.
21	MECHA RTS	Mechanism microprocessor DATA terminal input.
22	MECHA RXD	Mechanism microprocessor RXD terminal output.
23	MECHA TXD	Mechanism microprocessor TXD terminal input.
24	EMPHASIS	Emphasis information input terminal.
		(High:EMPHASIS ON SOURCE)
25	N.C	not used (Low output)
26	CNVss	GND
27	RESET	System reset signal input terminal. (at Low: reset)
28	N.C	not used (Low output)
29	N.C	not used (Low output)
30	XIN	Ceramic oscillator (8MHz)
31	XOUT	Ceramic oscillator (9MHz)
32	Vss	GND
33	N.C	not used (Low output)
34	N.C	not used (Low output)
35	N.C	not used (Low output)
36	N.C	not used (Low output)
37	N.C	not used (Low output)
38	N.C	not used (Low output)
39	N.C	not used (Low output)
40	N.C	not used (Low output)
41	DIG.1/DIG.2	Digital input selector signal output terminal.
		(at High: digital input 1)

PIN NO.	SYMBOL	DESCRIPTION
42	N.C	not used (Low output)
43	N.C	not used (Low output)
44	N.C	not used (Low output)
45	N.C	not used (Low output)
46	N.C	not used (Low output)
47	N.C	not used (Low output)
48	N.C	not used (Low output)
49	N.C	not used (Low output)
50	N.C	not used (Low output)
51	N.C	not used (Low output)
52	N.C	not used (Low output)
53	N.C	not used (Low output)
54	N.C	not used (Low output)
55	N.C	not used (Low output)
56	N.C	not used (Low output)
57	N.C	not used (Low output)
58	N.C	not used (Low output)
59	N.C	not used (Low output)
60	N.C	not used (Low output)
61	N.C	not used (Low output)
62	N.C	not used (Low output)
63	TSET SIGNAL(N.C)	Test signal output terminal for microprocessor.
		(normal: not used)
64	MICON TEST	Test signal input terminal for microprocessor. (at Low: check mode)
65	RI OUT	RE cord output terminal (Logic output)
66	RI INPUT	RI cord input terminal.
67	ANALOG REC MUTE	Analog rec mute control output terminal. (at high : on)
68	EXT.	Japan/Europe area select input terminal. (at low: japan)
69	MECHA TEST	Test mode detector input terminal. (at service)
70	R.ENCODER(B)	Phase input terminal for Rotary encoder
71	R.ENCODER(A)	Rotary encoder for palls input terminal.
72	REMOCON IN	Remote control signal
73	Vcc	Power supply. (connect +5v)
74	VREF	A/D,D/A converter power supply circuit.。 (connect +5V)
75	Avss	A/D,D/A converter power supply terminal.
		(GND converter power supply terminal)
76	N.C	not used (Low output)
77	N.C	not used (Low output)
78	N.C	not used (Low output)
79	N.C	not used (Low output)
80	N.C	not used (Low output)

IC101 CXA2523R (RFAMP)

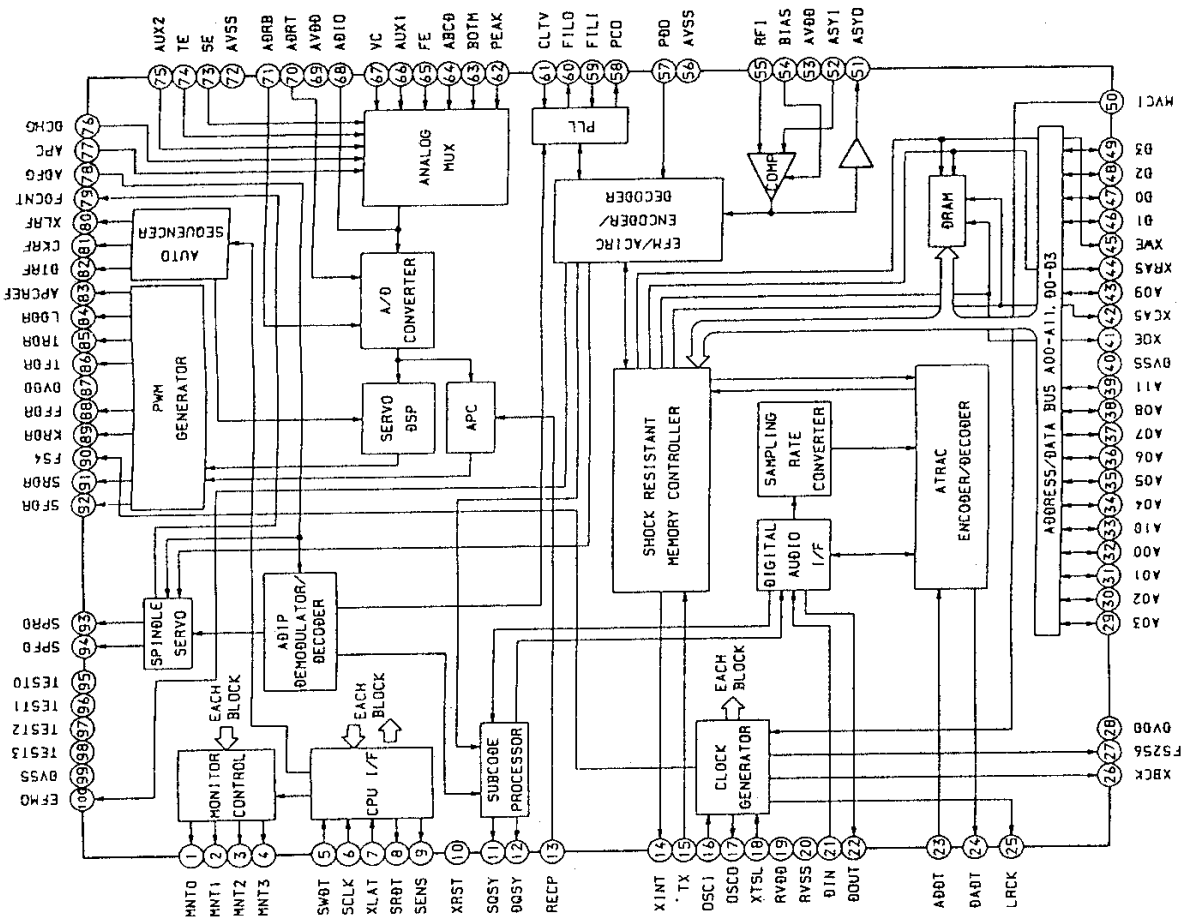


IC101 CXA2523R (RF AMP.)

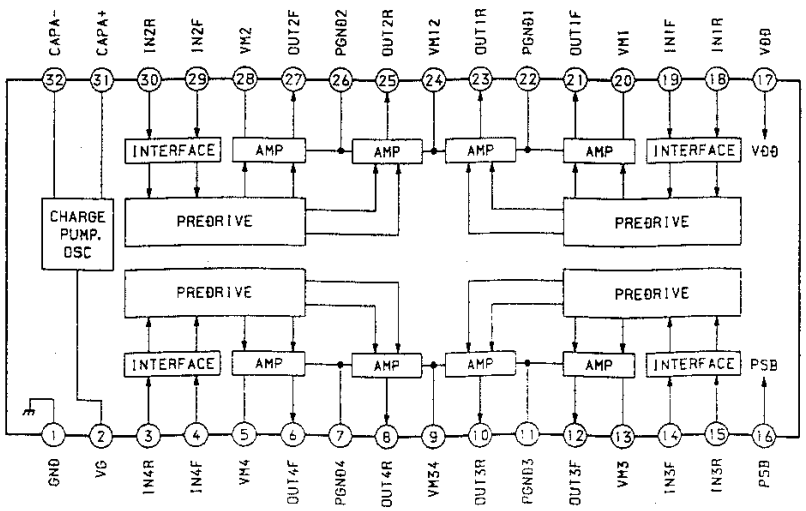
PIN NO.	SYMBOL	I/O	DESCRIPTION
1	I	I	RF signal I input for I-V converter
2	J	I	RF signal J input for I-V converter
3	VC	O	Mid-point voltage input terminal.
4 ~ 9	A ~ F	I	Input signal for optical pick-up detector
10	PD	I	Optical monitor input
11	APC	O	Laser APC output
12	APCREF	I	Laser power setting standard voltage input
13	GND	-	GND
14	TEMP	I	Thermal sensor connect terminal
15	TEMPR	O	Thermal sensor standard voltage output
16	SWDT	I	Serial data input for CXD2650R
17	SCLK	I	Serial clock input for CXD2650R
18	XLAT	I	Latch signal input for CXD2650R (at L: latch)
19	XSTBY	I	Standard signal input (at L: standby)
20	F0CNT	I	Internal circuit for CXD2650R
			(BFF22, BPF3T,EQ internal frequency control voltage input)
21	VREF	O	Standard voltage output (not used)
22	EQADJ	I/O	Internal frequency setting terminal for EQ Internal circuit
23	3TADJ	I/O	Internal frequency setting terminal for BPF3T Internal circuit
24	Vcc	-	Power supply +3V.
25	WBLADJ	I/O	Internal frequency setting terminal for BPF22 internal circuit
26	TE	O	Tracing error signal output for CXD2650R
27	CSLE	-	Sled error signal LPF external condenser connect terminal
28	SE	O	Sled error signal output for CXD2650R
29	ADFM	O	FM signal output for ADIP
30	ADIN	I	ADIP signal comparator input.
31	ADAGC	-	Capacitor connection terminal for ADIP
32	ADFG	O	ADDIP double signal output for CXD2650R
33	AUX	O	I3 signal/Thermal signal output for CXD2650R
34	FE	O	Focus error signal output for CXD2650R
35	ABCD	O	Optical signal output for CXD2650R
36	BOTM	O	RF/ABCD bottom hold signal output for CXD2650R
37	PEAK	O	RF/ABCD peak hold signal output for CXD2650R
38	RF	O	RF equalizer output for CXD2650R
39	RFAGC	-	Capacitor connection terminal for RF AGC circuit
40	AGCI	I	Input for RF AGC circuit
41	COMPO	O	Output for user comparator (not used)
42	COMPP	I	Input for user comparator (at L)
43	ADDC	I/O	Low frequency cut off
44	OPO	O	User ope-amp output (not used)
45	OPN	I	User ope-amp invert output (at L)
46	RFO	O	RF amp output
47	MORFI	I	Input for RF signal group
48	MORFO	O	RF signal output for group

APC : Auto Power Control
AGC: AutoGain Control

IC121 CXD2650R (ENCODER / DECODER, ATRAC)



IC152 BH65111FS (SLED / SPRINDLE MOTOR DRIVE, FORCOS / TRACKING COIL DRIVE)



IC121 CXD2650R (1/2)

PIN NO.	PIN NAME	I/O	FUNCTION
1	MNT0 (FOK)	O	FOK signal output from system control
2	MNT1 (SHCK)	O	Track jump detect signal output from system control
3	MNT2 (XBUSY)	O	Monitor 2 output from system control
4	MNT3 (SLOC)	O	Monitor 3 output from system control
5	SWDT	I	Write data signal input to system control
6	SCLK	I (S)	Serial clock signal input from system control
7	XLAT	I (S)	Serial latch signal input from system control
8	SRDT	O (3)	Write data signal output to system control
9	SENS	O (3)	Interruption status (SENSE) output to system control
10	XRST	I (S)	Reset input signal from system control
11	SQSY	O	Sub-cord Q sync. (SCOR) output to system control
12	DQSY	O	Digital in U-bit CD format sub-cord to system control
13	RECP	I	Laser power select input from system control
14	XINT	O	Interruption status output to system control
15	TX	I	Recording data output request input from system control
16	OSCI	I	System clock input (512Fs=22.5792MHz)
17	OSCO	O	System clock output (512Fs=22.5792MHz) (not used)
18	XTSL	I	System clock frequency setting terminal. "L": 45.1584MHz "H":22.5792MHz (at "H")
19	DVDD	-	Digital section power supply (+3V)
20	DVSS	-	Digital section GND
21	DIN	I	Digital audio input (Optical input)
22	DOUT	O	Digital audio output (Optical output)
23	ADDT	I	Input data from A/D converter
24	DADT	O	Data output to D/A converter
25	LRCK	O	A/D, D/A converter LR clock output (44.1kHz)
26	XBCK	O	A/D, D/A converter bit clock output (2.8224MHz)
27	FS256	O	11.2896MHz clock output (not used)
28	DVDD	-	Digital power supply (+3.0V)
29~32	A03 ~A00	O	DRAM addles output (not used)
33	A10	O	DRAM addles output (not used)
34~38	A04~A08	O	DRAM addles output (not used)
39	A11	O	DRAM addles output (not used)
40	DVSS	-	Digital section GND
41	XOE	O	DRAM output enable output (not used)
42	XCAS	O	DRAM CAS signal output (not used)
43	A09	O	DRAM addles output (not used)
44	XRAS	O	DRAM RAS signal output (not used)
45	XWE	O	DRAM write enable signal output (not used)
46	D1	I/O	DRAM data input/output (not used)
47	D0	I/O	DRAM data input/output (not used)
48,49	D2,D3	I/O	DRAM data input/output (not used)
50	MVCI	I (S)	Clock input from external VCO (connect to "L")
51	ASYO	O	Playback EFM dual signal output
52	ASYI	I (A)	Playback EFM compalator slice level input
53	AVDD	-	Analog section power supply (+3V)
54	BIAS	I (A)	Playback EFM comparator bias current input
55	RFI	I (A)	Playback EFM RF signal input
56	AVSS	-	Analog section GND
57	PDO	O (3)	Clock playback analog PLL plus comparator output of Playback EFM (not used)
58	PCO	O (3)	Rec/playback EFM master PLL plus comparator output
59	FILI	I (A)	Rec./playback section master PLL filter input
60	FILO	O (A)	Rec./playback section master PLL filter output
61	CLTV	I (A)	Rec./playback section master PLL inside VCO control voltage input
62	PEAK	I (A)	Optical signal peek hold input from CXA2523R
63	BOTM	I (A)	Optical signal bottom hold input from CXA2524R
64	ABCD	I (A)	Optical signal input from CXA2523R
65	FE	I (A)	Focus error signal input from CXA2523R
66	AUX1	I (A)	AUX A/D input

IC121 CXD2650R (2/2)

PIN NO.	PIN NAME	I/O	FUNCTION
67	VC	I (A)	Center voltage (+1.5V) input from CXA2523R
68	ADIO	O (A)	Monitor output of A/D converter input signal (not used)
69	AVDD	-	Analog section power supply (+3V)
70	ADRT	I (A)	A/D converter operation range upper limit voltage input (connect to "H")
71	ADRB	I (A)	A/D converter operation range lower limit voltage input (connect to "L")
72	AVSS	-	Analog section GND
73	SE	I (A)	Sled error signal input from CXA2523R
74	TE	I (A)	Tracking error signal input from CXA2523R
75	AUX2	I (A)	AUX A/D input (connect to "L")
76	DCHG	I (A)	Connect to power supply (+3V)
77	APC	I (A)	Laser digital APC error signal input (connect to "L")
78	ADFG	I (S)	ADIP dual FM signal input from CXA2523R (22.05±1kHz)
79	F0CNT	O	Filter fo control output from CXA2523R
80	XLRF	O	Control lurch output from CXA2523R
81	CKRF	O	Control clock output from CXA2523R
82	DTRF	O	Control data output form CXA2523R
83	APC REF	O	Laser APC references PWM output
84	LDDR	O	Laser digital APC PWM output (not used)
85	TRDR	O	Tracking save drive PWM output (-)

Q701 MB-M3 (MECHANISM CONTROL MICROPROCESSOR) (1/2)

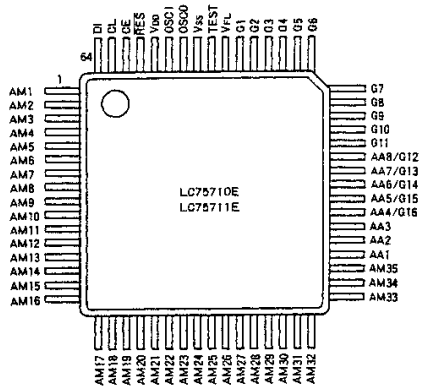
PIN NO.	SYMBOL	I/O	DESCRIPTION
1	NC		Open
2	NC		Open
3		I	Connect to "H"
4		I	Connect to "H"
5		I	Connect to "H"
6	CHUCKINSW	I	Detect input for chucking switch (at detect: "L")
7	NC		
8	PACK OUTSW	I	Sensor input for Back out switch (atdetect : "L")
9			connect to "L"
10			connect to "L"
11	AVSS		connect to "L"
12	XINT	I	Interruption stags input for IC121
13	P.DOWN	I	Power down detect input (at normal: "H")
14			connect to "L"
15	SQSY	I	Sub-cord Q sync. input
16	DQSY	I	Digital input U-bit. Sub-Q sync input for CD format
17			connect to "L"
18			connect to "L"
19			connect to "L"
20	SYS. RST	I	System reset signal input
21	TEST	I	GND connect.
22	+3.3V		Power suppply input +3.3V.
23	VBAT	I	Back up power supply terminal
24	X-OUT		Clock output (32kHz)
25	X-IN		Clock input (32kHz)
26	GND		GND terminal
27	XOUT		Clock output (12MHz)
28	XIN		Clock input (12MHz)
29	GND		GND terminal
30	NC		Open
31			connect to "L"
32	SENS	I	Internal status input for IC121
33	SHOCK	I	Chock detector signal input for IC121
34			connect to "L"
35			connect to "L"
36	STB	O	Strobe signal output for power supply circuit
37	REC-P	I	Detect input for rec position switch. (at rec: "L")
38	PB-P	I	Detect input for PB position switch. (at PB: "L")
39	LDLOW	O	Loading speed select signal output
40	NC		open
41	MNT2	I	Internal status input for IC121
42	MNT3	I	Internal status input for IC121
43	NC		open
44			connect to "L"
45			connect to "L"
46	NC		Open
47	GND		GND
48	+3.3V		Power supply input (+3.3V)
49			connect to "L"
50			connect to "L"
51			connect to "L"
52	SDA	I/O	Data signal input for IC171
53	SCL	O	Clock signal output for IC171
54			connect to "L"
55			connect to "L"
56			connect to "L"
57	RXD	I	RS232C terminal
58	TXD	O	RS232C terminal
59	RTS	O	RS232C terminal
60	CTS	I	RS232C terminal
61			connect to "L"
62			connect to "L"
63			connect to "L"
64			connect to "L"

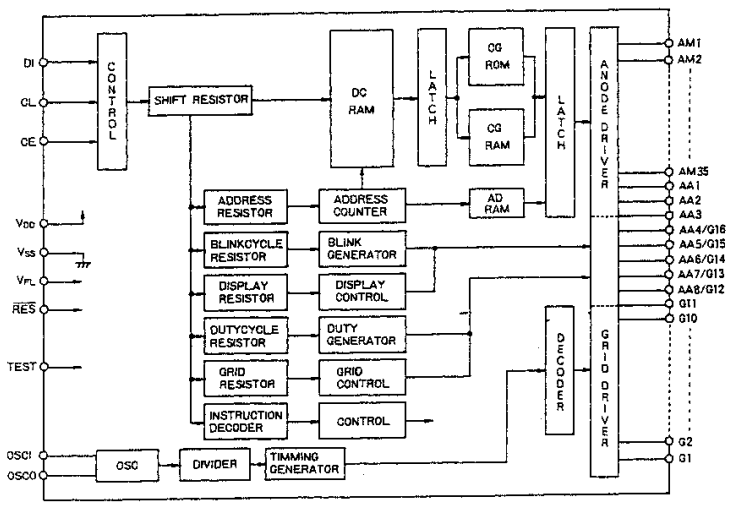
Q701 MB-M3 (MECHANISM CONTROL MICROPROCESSOR) (2/2)

PIN NO.	SYMBOL	I/O	DESCRIPTION
65	GND		GND terminal
66	+3.3V		Power supply input (+3.3V)
67	SCLK	I/O	Clock signal output to serial bus
68	SWDT	I/O	Write data signal output to serial bus.
69	SRDT	I	Read data signal input from serial bus.
70	NC		
71	NC		Open
72	NC		Open
73	NC		Open
74			at "H"
75	LDON	O	Laser on/off control output. (at on: "H")
76	NC		Open
77	FOK	I	FOK signal output from IC121
78	NC		Open
79	NC		Open
80	WRPWR	O	Laser power select signal output to Optical block
81	DIG-RST	O	Digital section reset signal output
82	NC		Open
83	DA-RST	O	Reset signal output to DA converter
84	NC		Open
85	NC		Open
86	MOD	O	Laser modulation select signal output
87	NC		Open
88	NC		Open
89	SCTX	O	Write data transmit timing output to IC121
90	XLATCH	O	Latch signal output to serial bus
91	NC		Open
92	NC		Open
93	AMUTE	O	Line output mute output (at "L": mute)
94	LDOUT	O	Loading motor control output
95	LDIN	O	Loading motor control output
96	LIMITIN	I	Detect input from limit in switch (at "L": limit in)
97	PROTECT	I	Detect input from protect switch (at "H": protect)
98	REFLECT	I	Detect input from reflect switch (at "H": low reflect)
99	GND		GND
100	+3.3V		Power supply input +3.3V.

Q801 LC75710E (LCD Driver)

PIN NO.	SYMBOL	I/O	DESCRIPTION
1 ~ 35	AM1 ~ AM35	O	Anode output terminal. (with/pull down resistor)
36 ~ 38	AA1 ~ AA3	O	Anode output terminal. (with/pull down resistor)
39	AA4/G16	O	Anode/grid output terminal. (with/pull down resistor)
40	AA5/G15	O	Anode/grid output terminal. (with/pull down resistor)
41	AA6/G14	O	Anode/grid output terminal. (with/pull down resistor)
42	AA7/G13	O	Anode/grid output terminal. (with/pull down resistor)
43	AA8/G12	O	Anode/grid output terminal. (with/pull down resistor)
44 ~ 54	G11 ~ G1	O	Grid output terminal. (with/pull down resistor)
55	VFL		Driver section power terminal.
56	TEST		LSI test terminal.
57	Vss		Logic section power supply terminal. GND
58	OSCO		Oscillator circuit output terminal.
59	OSC1		Oscillator circuit input terminal.
60	VDD		Logic section power supply +5V.
61	$\overline{RES}$	I	System reset input terminal.
62	CE	I	Serial data transit terminal (chip enable)
63	CL	I	Serial data transit terminal (sync clock)
64	DI	I	Serial data transit terminal (transit data)



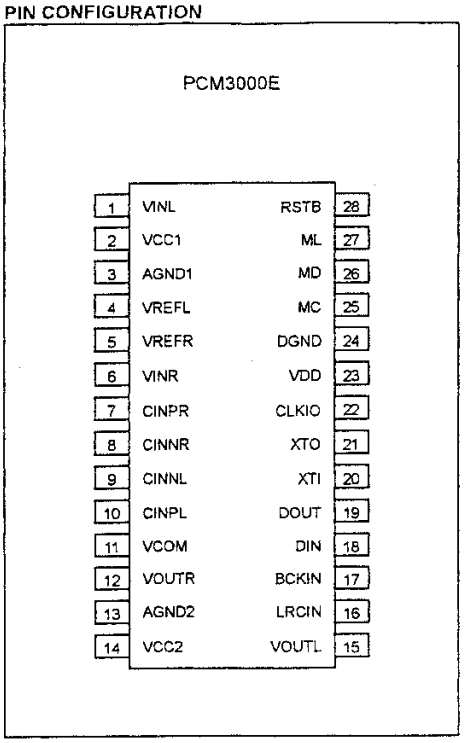


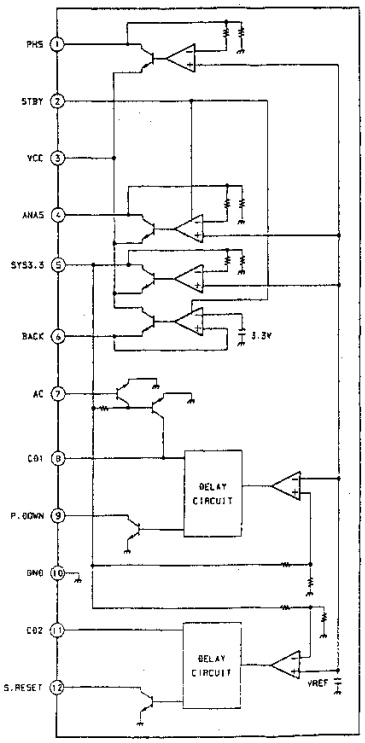
Q301 PCM3000E (D/ACONVERTER)

PIN ASSIGNMENTS

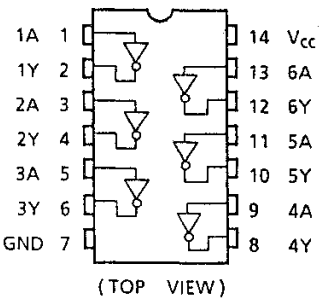
PIN	NAME	I/O	DESCRIPTION
1	VINL	IN	ADC Analog Input, Lch
2	VCC1	-	ADC Analog Power Supply
3	AGND1	-	ADC Analog Ground
4	VREFL	-	ADC Input Reference, Lch
5	VREFR	-	ADC Input Reference, Rch
6	VINR	IN	ADC Analog Input, Rch
7	CINPR	-	ADC Anti-alias Filter Capacitor(+), Rch
8	CINNR	-	ADC Anti-alias Filter Capacitor(−), Rch
9	CINNL	-	ADC Anti-alias Filter Capacitor(−), Lch
10	CINPL	-	ADC Anti-alias Filter Capacitor(+), Lch
11	VCOM	-	DAC Output Common
12	VOUTR	OUT	DAC Analog Output, Rch
13	AGND2		DAC Analog Ground
14	VCC2	-	DAC Analog Power Supply
15	VOUTL	OUT	DAC Analog Output, Lch
16	LRCIN	IN	Sample Rate Clock Input (fs)
17	BCKIN	IN	Bit Clock Input
18	DIN	IN	Data Input
19	DOUT	OUT	Data Output
20	XTI	IN	Oscillator Input
21	XTO	OUT	Oscillator Output
22	CLKIO	I/O	Buffered Output of Oscillator or External Clock Input
23	VDD	-	Digital Power Supply
24	DGND	-	Digital Ground
25	MC	IN	Mode Control for Serial Bit Clock *1
26	MD	IN	Mode Control for Serial Data *1
27	ML	IN	Mode Control for Strobe Pulse *1
28	RSTB	IN	Reset *1

PIN CONFIGURATION





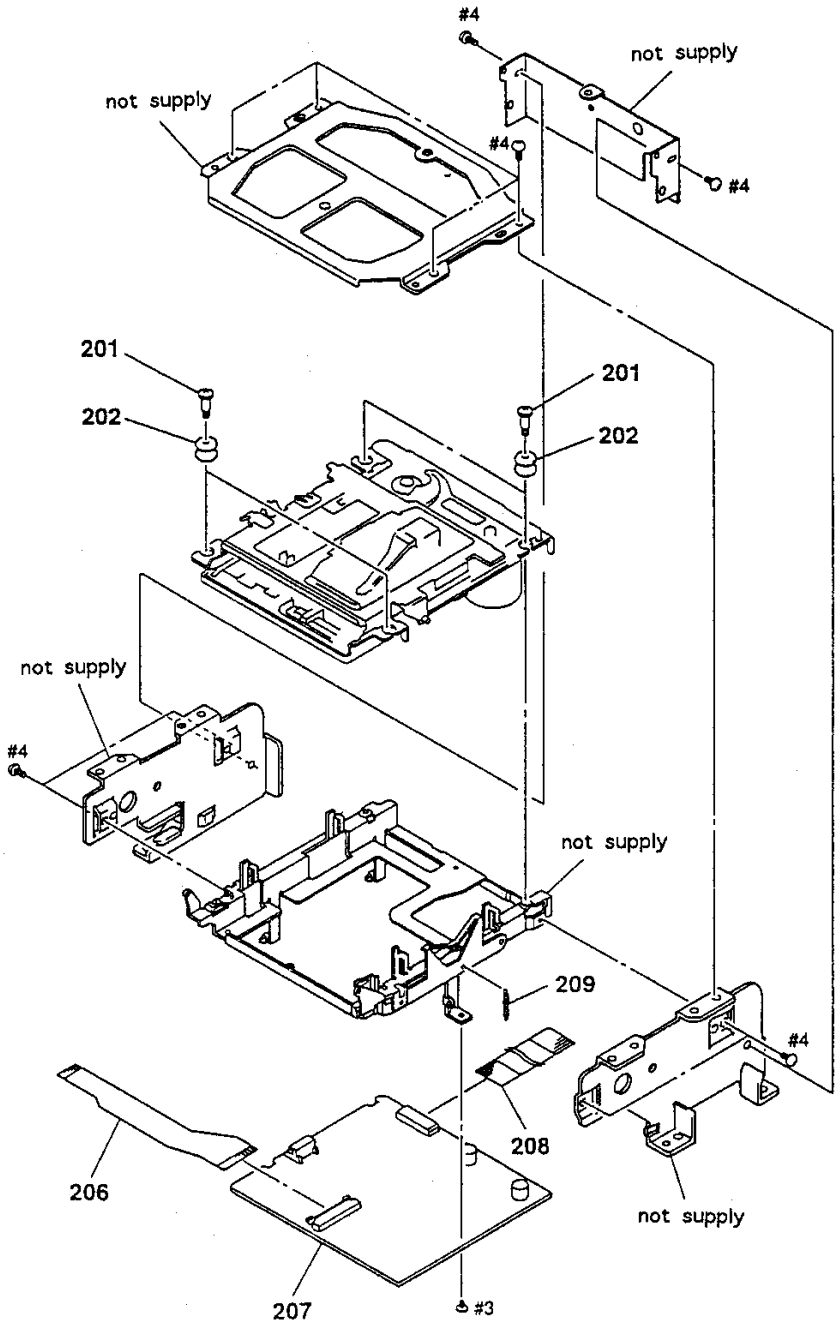
Q951 LA5620 (VOLTAGE REGULATOR)



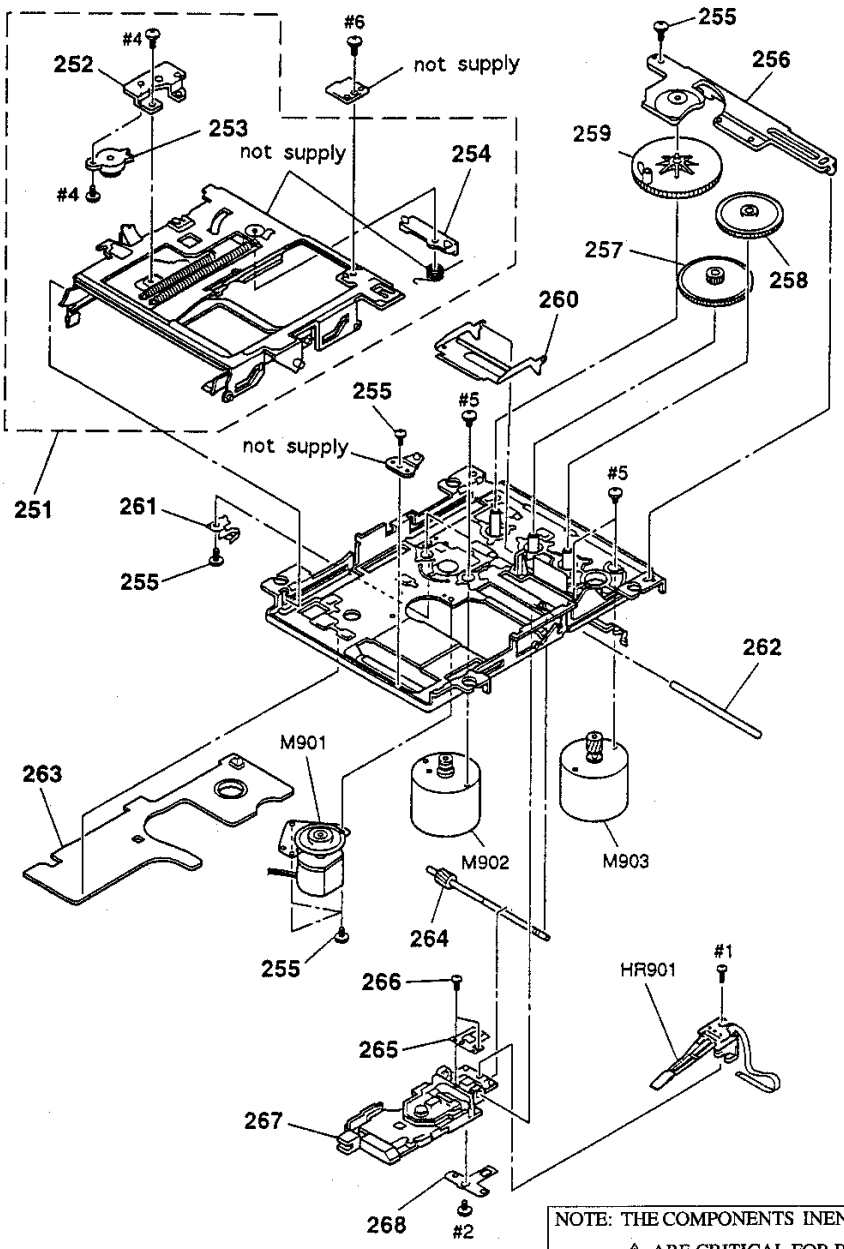
A	Y
L	H
H	L

Q503 74HCOU

MD MECHANISM EXPLODED VIEW



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
201	4628-167-01	Screw	207	A4699-615-A	BD pc board ass'y
202	4987-327-01	Insulator	208	1777-517-11	Flat cable (15 wire)
206	1660-966-11	Flexible flat cable, Optical pick-up	209	4987-910-01	Spring coil



NOTE: THE COMPONENTS INENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

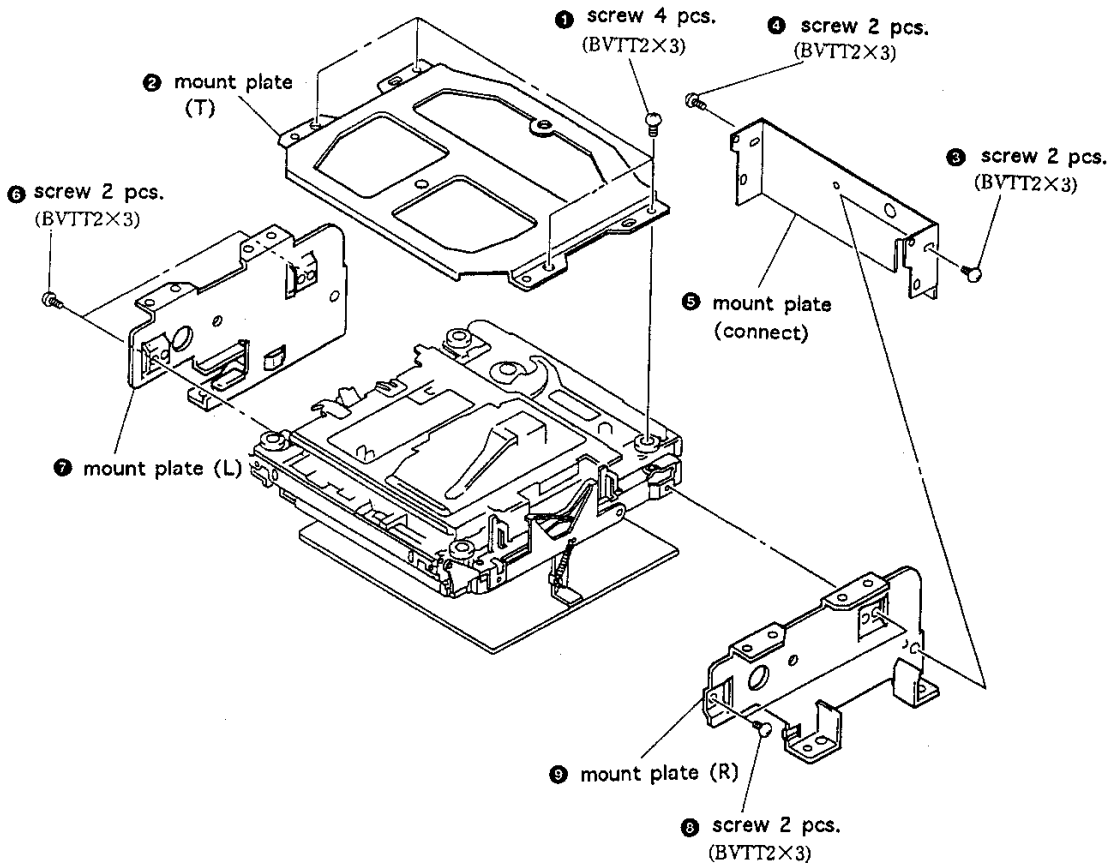
REF. NO.	PART NO.	DESCRIPTION
251	A4672-138-A	Slider ass'y
252	4983-439-01	Bracket (Dumper)
253	3953-235-01	Oil dumper
254	4983-437-01	Slider (cam)
255	3342-375-11	Special screw (M1.7X1.4)
256	4979-890-31	Bracket (Gear)
257	4979-898-01	Gear (LB)
258	4979-899-01	Gear (LC)
259	4979-897-21	Gear (LA)
260	4979-885-01	Lever (Head up)
261	4979-906-01	Leaf spring (lead screw)

REF. NO.	PART NO.	DESCRIPTION
262	4984-556-01	Shaft (main shaft)
263	1661-774-11	SW pc board
264	A3304-200-A	Lead screw ass'y
265	4963-914-02	Luck (inserter)
266	3366-890-11	nylon lock (M1.4)
267	⚠ 8583-028-01	Optical pick-up (KMS-260A/J1N)
268	4987-061-01	Spacer (luck)
HR901	1500-396-11	Over write head
M901	A4672-135-A	Sprindle motor ass'y
M902	A4672-133-A	Slid motor ass'y
M903	A4672-134-A	loading motor ass'y

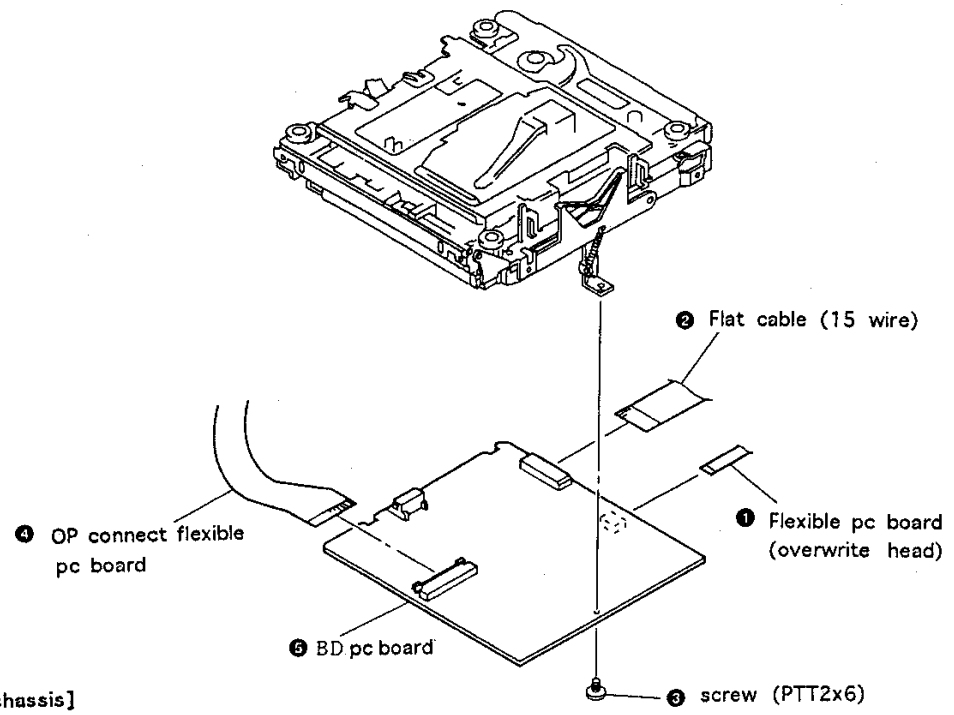
MD MECHANISM DISASSEMBLY

• Remove the parts in numerical order.

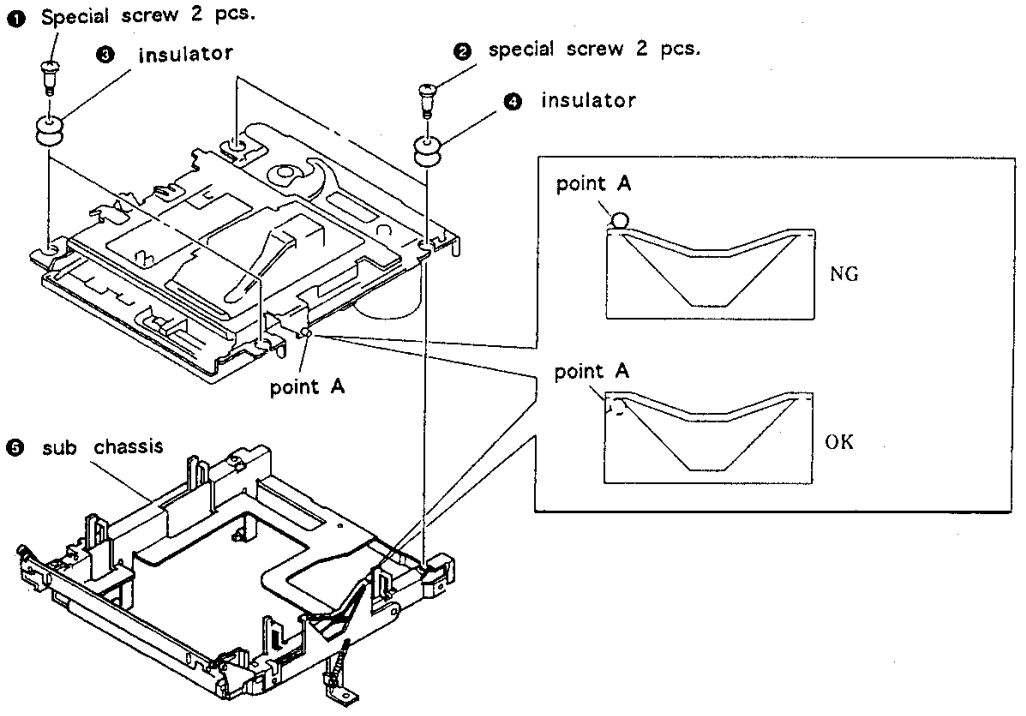
[mount plate (T),(L),(R)]



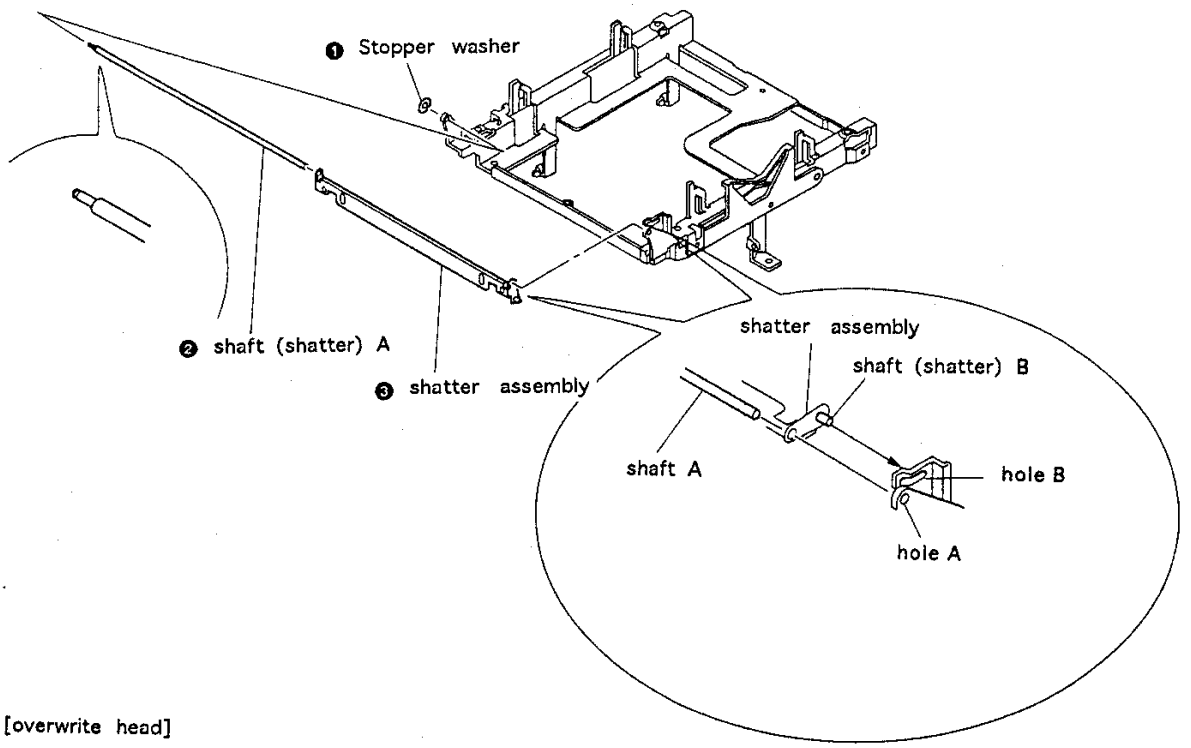
[DB pc board]



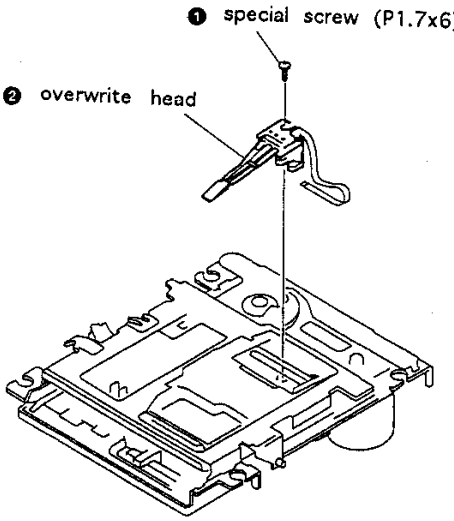
[Sub chassis]



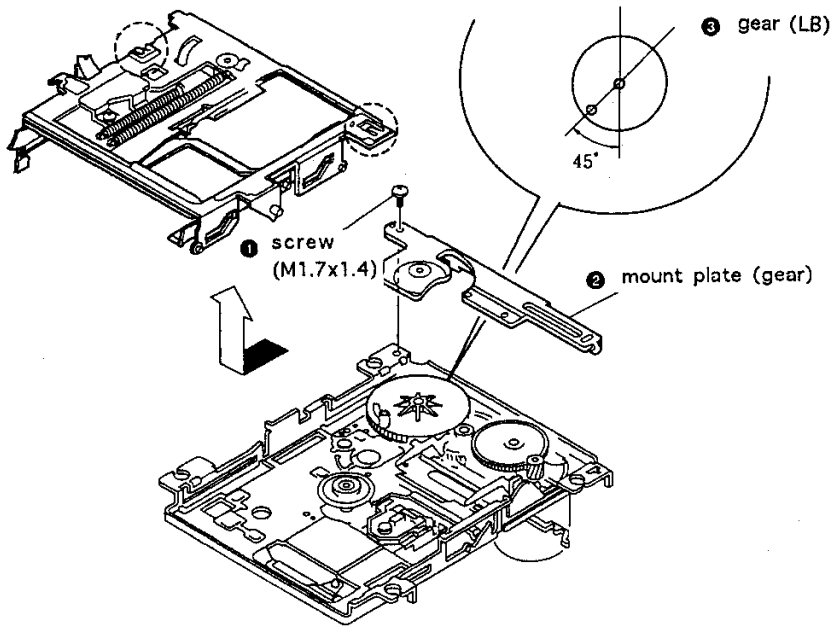
[Shatter assembly]

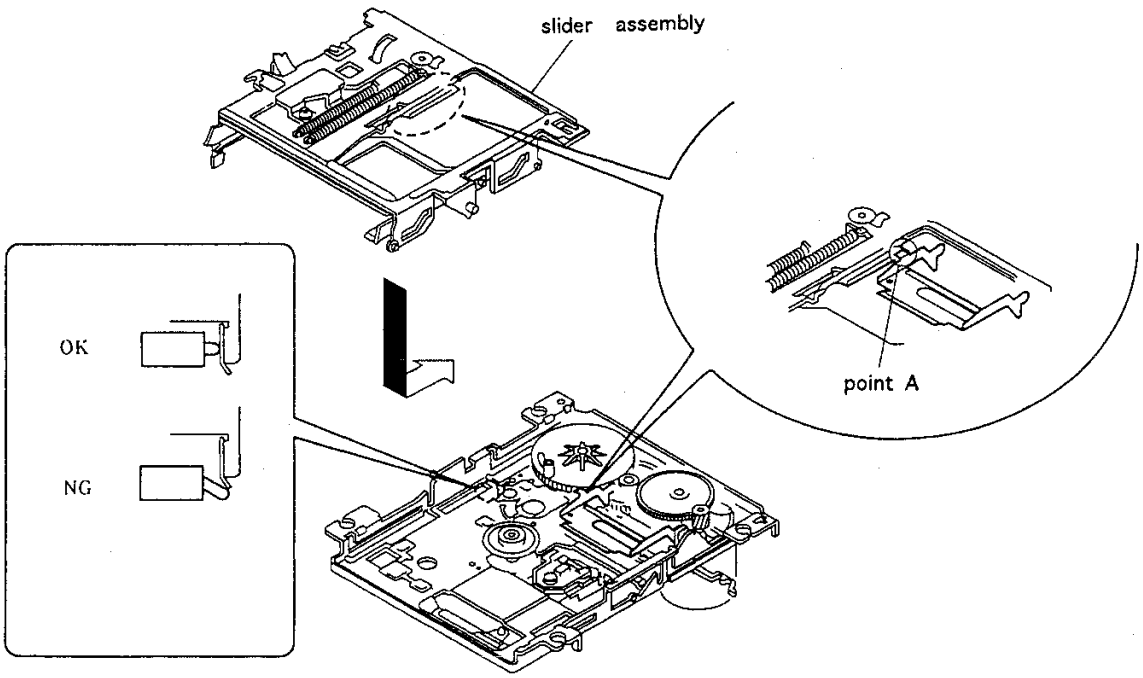


[overwrite head]



[slider assembly]





1. TEST MODE

1.1 Precaution for Using the Test Mode

1. In the test mode, the loading related movement does not correspond with the test operation.
   Be sure that the disc is stopped completely before replacing the disc.
   Pressing the EJECT key when a disc is rotating in continuous play/recording, etc. does not stop the rotation of the disc, causing the rotating disc to be ejected.
   Be sure to press the EJECT key while pressing the NO key.
2. In the test mode, the open/close state of the record-protect tab is not detected and therefore, if the unit enters a laser power emitting mode such as continuous recording mode (CREC MODE) and traverse adjustment mode (EFBAL ADJUST), the recorded conte

1.2 Setting the Test Mode

1. Connect the pin 69 of Q702 (M38067MC-241FP) and GND.
2. Plug in the power cord of the unit into a wall outlet.

1.3 Canceling the Test Mode

Unplug the power cord of the unit from the wall outlet.

1.4 Basic Operation in the Test Mode

In the test mode, all operations are made through three controls: AMCS knob, YES key and NO key. The functions of these controls are shown below.

Function name	Function
AMCS knob	Changes the parameter and test item.
YES key	Proceeds to the next step or finalizes the operation.
NO key	Returns to the previous step or aborts the operation.

1.5 Selecting the Test Item

Select the desired test item from the following eight items by turning the AMCS knob.

Display information	Test item
TEMP ADJUST	Temperature compensation offset adjustment
LDPWR ADJUST	Laser power adjustment
LDPWR CHECK	Laser power adjustment
EFBAL ADJUST	Traverse adjustment
FBIAS ADJUST	Focus bias adjustment
FBIAS CHECK	Focus bias adjustment
CPLAY MODE	Continuous play mode
CREC MODE	Continuous recording mode

For details of individual test items, see the applicable section in "2. Electrical Adjustments".

If you select a wrong test item, press the NO key to deselect the item.

* EEP MODE (non-volatile memory mode) is not used for servicing.

If you select this item by mistake, press the NO key immediately to deselect the item.

1.6 Functions of Other Controls

Control name	Function
▷/❚❚	Causes continuous playing when stopped; Turns ON/OFF the tracking servo when in continuous play.
■	Stops continuous playing/recording.
▷▷	Moves the thread to outside while the key is pressed.
◁◁	Moves the thread to inside while the key is pressed.
●	Starts/stops recording during continuous play.
PLAY MODE	Switches spindle servo mode (between "CLV" and "A") each time the key is pressed.
DISPLAY	Switches display mode each time the key is pressed.

Note: The open/close state of the record-protect tab will not be detected during the test mode. Remember that pressing the ● (REC) key erases the recorded contents regardless of the position of the record-protect tab.

1.7 Meanings of Other Display Information

Display information	Mode		
	Lit	Not Lit	Flashing
▷	In continuous play	Stopped	
❚❚	Tracking servo OFF	Tracking servo ON	
REC	Recording mode ON	Recording mode OFF	
CLOCK	CLV LOCK	CLV UNLOCK	
TRACK	Bit	Group	
DISC	High reflection	Low reflection	
DATE	CLV-S	CLV-A	
A.SPACE	ABCD adjustment completed		
A-B	Focus auto gain successful		Focus auto gain successful
	Tracking auto gain successful		Tracking auto gain failed

2. ELECTRICAL ADJUSTMENTS

2.1 Precautions for Checking Laser Emission from the Laser Diode

When checking the emission of laser from the laser diode during adjustments, never it from directly above the laser diode. Doing so may cause loss of your eyesight.

2.2 Precautions for Handling the Optical Pickup (KMS-260A)

The laser diode inside the optical pickup is easily damaged by static electricity.

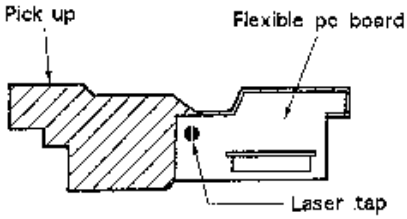
When handling the optical pickup, solder-bridge the laser tap located on the flexible circuit board.

If you are disconnecting the optical pickup, provide solder-bridging before removing it;

Do not remove the solder bridging before reconnecting the optical pickup.

Also, tape sufficient preventive measures against static electricity when working on it.

It is also noted that the flexible circuit board must be handled carefully because its wiring is easily broken.



2.3 Precautions for Adjustments

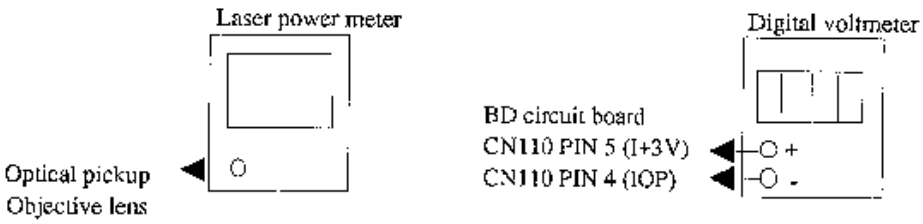
1) Whenever you have replaced the optical pickup, adjust the laser power.
2) Conduct adjustments in the test mode.
   Exit from the test mode if you have finished adjustments.
3) Use the following test disc and measuring instruments.

   CD test disc: TGYS-1
   Laser power meter: LPM-8001 (manufactured by LEADER)
   Oscilloscope (with 40MW band or more; Conduct probe CAL before measurement.)
   Digital voltmeter

4) If you monitor two or more signals on an oscilloscope, do not connect VC to GND inside the oscilloscope (Otherwise, short-circuit will occur between VC and GND.)

2.4 Adjusting the Laser Power

Connection:



Adjustment:

1. Install the later power meter on the objective lens of the laser pickup.
   (If it cannot be installed properly, move the pickup using the <-<- or ->-> key.)
   Connect the digital voltmeter to CN110 Pin 5 (I+3V) and CN110 pin 4 (IOP).
2. Turn the AMCS knob until "LDPWR ADJUS" is displayed.
   (Laser power: For adjustment)
3. Press the YES key to display "LD 0.9mW $□□".
4. Adjust AMCS knob such that the laser power reading becomes 0.86mW~0.92mW.
   Press the YES key to display "LD SAVE $□□".
5. Press the YES key to display "LD 7.0mW $□□".
6. Adjust AMCS knob such that the laser power reading becomes 6.9mW~7.1mW.
   Press the YES key to display "LD SAVE $□□".
7. Turn the AMCS knob until "LDPWR CHECK" is displayed.
8. Press the YES key to display "LD 0.9mW $□□".
   Laser power meter reading: 0.85mW ~ 0.91mW

9. Press the YES key to display "LD 7.0mW S□□".
   Verify that the readings on the laser power meter and the digital voltmeter are within the value specified below:

   Standard value:

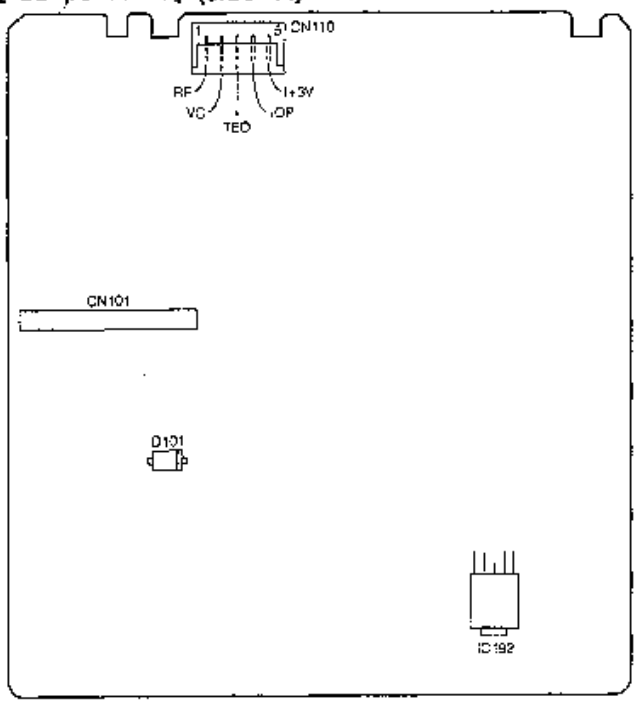
   Laser power meter reading: 7.0mW ±0.1mW
   Digital voltmeter reading: Optical pickup displayed value ±10%
   (Optical pickup label)

   In this case, Iop=82.5mA
   Iop (mA) = Digital voltmeter reading (mV)/1 (Ω)

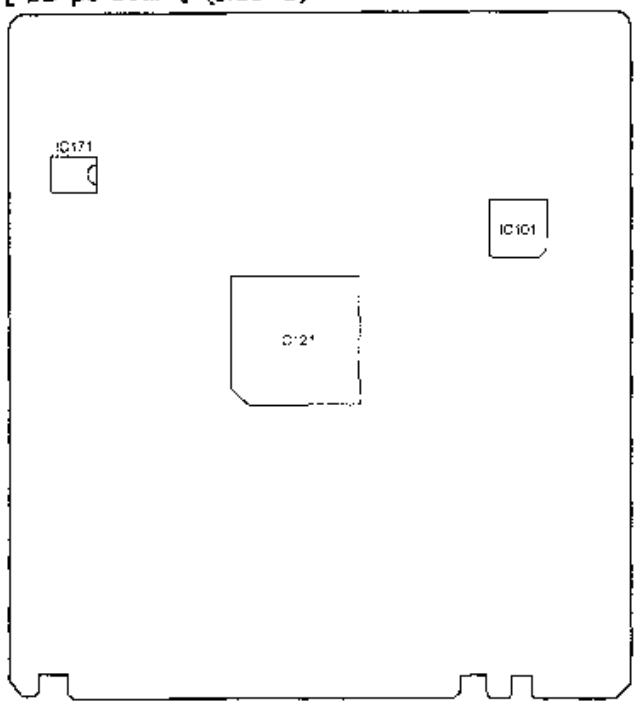
10. Press the NO key to display "LDPWR CHECK", then stop the laser emission.
    (The NO key is always accepted to stop the laser emission.)

2.5 Adjustment point

[BD pc board] (side A)



[BD pc board] (side B)



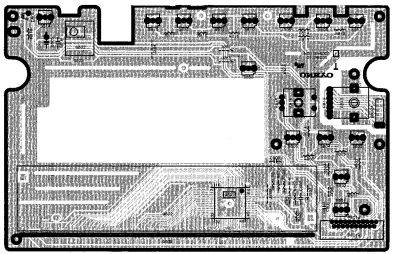
Message list

The following table explains the various messages that appear in the display.

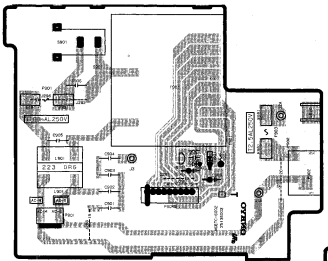
Message	Meaning
All Erase!!	An attempt was made to record onto a faulty MD.
Blank Disc	A new (blank) or erased disc has been inserted.
Cannot Copy	An attempt was made to make a second copy from a digitally dubbed MD (see "Rules for Digital Recording" on page 30).
Cannot Edit	An attempt was made to edit the disc during PROGRAM or RANDOM play.
Cannot Rec	An attempt was made to record onto a premastered (read-only) disc.
CD Dub Fail	The Pause button was pressed during CD-dubbing. (The Pause button, which is effective for normal recording operation, is not usable during CD-dubbing.)
D. In Unlock	The digital equipment (CD player, DAT, etc.) has not been connected properly. Otherwise, the connected digital equipment is not operating properly.
Disc Error	The disc is abnormal (scratched or missing a TOC).
Disc Full	The disc is full (see "System Limitations" on this page).
Impossible	An attempt was made to combine the first track.
Name Full	The titling capacity of the disc has reached its limit.
No Change	The naming attempt failed.
No Disc	There is no disc in the unit.
No Track	The inserted disc has a disc title but no tracks.
Over	In pause mode (when playing is paused), the FF (Fast Forward) button was pressed to the end of the disc.
Program Full	An attempt was made to record a 26th track.
Protected	The inserted disc is record-protected.
Retry	The first recording attempt failed due to a disturbance or scratch on the MD, and a second recording is being made.
Retry Error	The recording attempt failed due to a consecutive disturbance or scratches on the MD.
Sorry	An attempt was made to combine tracks that cannot be combined.
TOC Error	The reading of the TOC failed.
U-TOC Error	The writing of the recorded or edited contents failed.

Even if "Disc Error" is displayed, you may be able to record on the disc. Press the ● REC button and, when "All Erase!!" appears in the display, try pressing the ● REC button again.

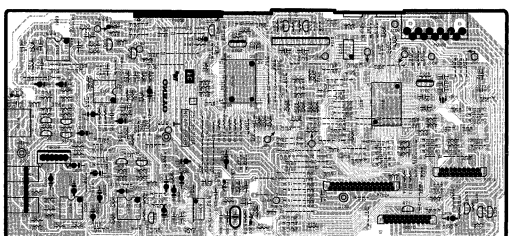
PRINTED CIRCUIT BOARD BOTTOM VIEWS



U4 DISPLAY CIRCUIT PC BOARD

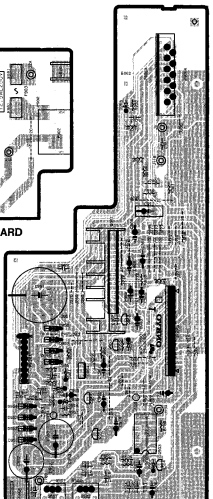


U2 POWER TRANSFORMER CIRCUIT PC BOARD



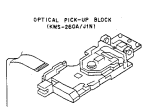
U1 DIGITAL CIRCUIT PC BOARD

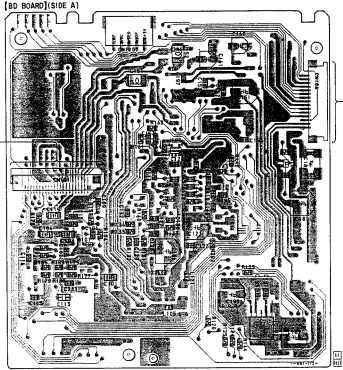
U5 AC OUTLET PC BOARD

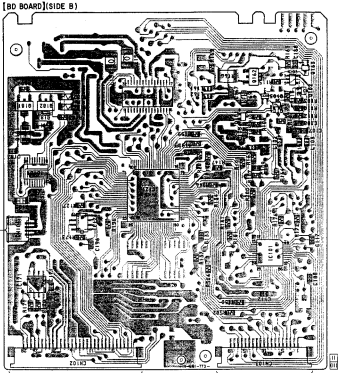


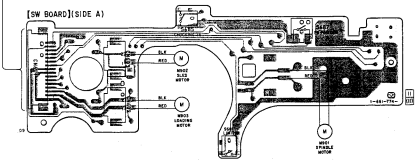
U3 POWER SUPPLY CIRCUIT PC BOARD

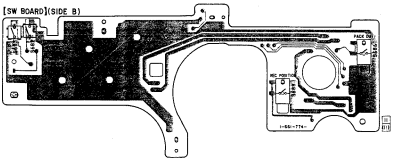
PRINTED CIRCUIT BOARD (BD SECTION)











PRINTED CIRCUIT BOARD PARTS LIST

U1 DIGITAL CIRCUIT PC BOARD (NAAR-5999-1B/1C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q101,Q102,D201, Q202	22240191	NJM4565D-D
Q301	22241078	PCM3000E
Q701	22241084R3	MB-M3
Q702	22241080R3	M38067MC-241FP
Q703	22241081R2	TC74VHCT04
Q704	22240848	LB1641
	Transistors	
Q103-Q106,Q709, Q710	2211705 or 2211706	2SD655-E or 2SD655-F
Q107,Q108,Q205, Q707,Q711	2213590 or 2213090	RN2207 or DTA114YS
Q203,Q204	2213600 or 221299	RN1211 or DTC114TS
Q705	2213570 or 221281	RN1207 or DTC114YS
Q706	2213105 or 2213106	2SA1115-E or 2SA1115-F
Q708	2213074 or 2213075	2SA933-R or 2SA933-S
	Diodes	
D701	224470562	MTZJ5.6B, Zener
D702	223222 or 223163 or 223205	WG713A or 1SS133 or 1SS270A
	Capacitors	
C101,C102,C109, C110,C114,C201, C202,C209,C210, C309,C310,C313	393341007	10 μF,16V, Elect.
C103,C104-C106	374721524	1500pF±5%,50V,Plastic
C107,C108	374724724	4700pF±5%,50VPlastic
C111,C112	393341017	100 μF,16V, Elect.
C115,C116	374723915	390pF±10%,50V,Plastic
C205-C208	393341017	100 μF,16V, Elect.
C308	393224707	47 μF,6.3V, Elect.
C311,C312	374724714	470pF±5%,50V,Plastic
C315	393380477	4.7 μF,50V, Elect.
C703	374723344	0.33 μF±5%,50V,Plastic
C704	374721044	0.1 μF±5%,50V,Plastic
C709	393322217	220 μF,6.3V, Elect.
	Coils	
L301,L302	230906	BL02RN2-R62
	Jacks	
P703	25045330 or 25045481	NPT-2PDBL184 or NPT-2PDBL299, RI
	Pin Jack	
P201	25045397	NPJ-4PDWR222
	Sockets	
P701A	25051771	NSCT-19P1558
P702A	25051781	NSCT-29P1568
P801B	25051773	NSCT-21P1560
P906B	25051051	NSCT-11P838
	Plugs	
P802B	25055150	NPLG-6P134
P905B	25051530	NSCT-19P1317
	Resonator	
X702	3010252	CST12.0MTW, Ceramic lock
X703	3010190	CST8.00MTW, Ceramic lock
	Crystal	
X301	3010274	HC-49/UC3, 22.5792MHz
X701	3010275	DT-38(32KHz)

L2 POWER TRANSFORMER CIRCUIT PC BOARD (NAETC-6002-1B/1C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q901	2213074 or 2213075	2SA933-R or 2SA933-S
	Diodes	
D901	22380035 or 22380260	GP104003E or RL1N4003E
D902	224472704	MTZJ27D, Zener
	Capacitors	
C906	3500191	0.01 μF±20%, AC400V/125V, IS C
C907	393380477	4.7 μF,50V, Elect.
C909	393381017	100 μF,50V, Elect.
	Resistor	
R902	443522204	22ohm,1/2W, ±5%,Metal oxid
	Coil	
L901	231252	NCH-3489
	Fuse holder	
F881	25050065	YSH403T <P,PT>
	AC outlet	
P902	25050684	⚠ NSCT-2P488 <DT>
P903	25050410	⚠ NSCT-2P235 <P,PT>
	Plug	
P901	25055675	NPLG-2P631
	Capacitor cover	
C906A	27301216	SB1925A

U3 POWER SUPPLY CIRCUIT PC BOARD (NAPS-6001-1B/1C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q503	222740005TOS	74HC00P
Q504	222780023	78L02
Q951	22241077	LA5620
Q954	222780055JRC	NJM78M05FA
Q955	222780063	78L06
Q956	222790063	79L06
	Transistors	
Q952	2213570 or 221281	RN1207 or DTC114YS
Q953	2213590 or 2213090	RN2207 or DTA114YS
	Diodes	
D501,D960-D962	223222 or 223163 or 223205	WG713A or 1SS133 or 1SS270A
D951-D958	22380035 or	⚠ GP104003E or
D966	22380260	RL1N4003E
D959	224470562	MTZJ5.6B, Zener
D963	224470623	MTZJ6.2C, Zener
	Capacitors	
C501,C503	374721034	0.01 μF±5%,50V,Plastic
C505	374721044	0.1 μF±5%,50V,Plastic
C506	393324717	470 μF,6.3V, Elect.
C507	393321017	100 μF,6.3V, Elect.
C951	3500181	22000 μF,16V, Elect.
C952,C953	393343327	3300 μF,16V, Elect.
C955	393341007	10 μF,16V, Elect.
C956,C962,C957	374721044	0.1 μF±5%,50V,Plastic
C958	374722244	0.22 μF±5%,50V,Plastic
C959,C960	393344717	470 μF,16V, Elect.
C961,C966-C968	393322217	220 μF,6.3V, Elect.
C963	393380477	4.7 μF,50V, Elect.
C964	393380107	1 μF, 50V,Elect.
C965	393380227	2.2 μF,50V, Elect.
C970	3010089	DX-5R5V105, super

CIRCUIT NO.	PART NO.	DESCRIPTION
	Photo Cupler	
Q501,Q502	24120037	TORX178A
	Sockets	
P905A	25055808	NPLG-19P764
P906A	25055662	NSCT-11P618
	Radiator	
E857	27160381	RAD-108

U4 DISPLAY CIRCUIT PC BAORD (NADIS-6000-1B/IC)

CIRCUIT NO.	PART NO.	DESCRIPTION
	FL tube	
Q802	212145	BJ399GK
	IC	
Q801	22240564	LC75710E
	Diode	
D801	225321	SLR342VR, LED
	Capacitor	
C806	393380477	4.7 μ F,50V, Elect.
	Resistor	
R819	5104366	N14RLS10KA20Z, Rec. level
	Remote sensor	
Q803	24130010	HC-312
	Switches	
S801-S814	25035652	NPS-111-S604
	Socket	
P801A	25051801	NSCT-21P1588
	Socket AS	
P802A	2009990407	NSAS-12P0544
	Rotary encoder	
S815	25065512	EC11B1524412
	Holder	
E859	27190957A	(FL)

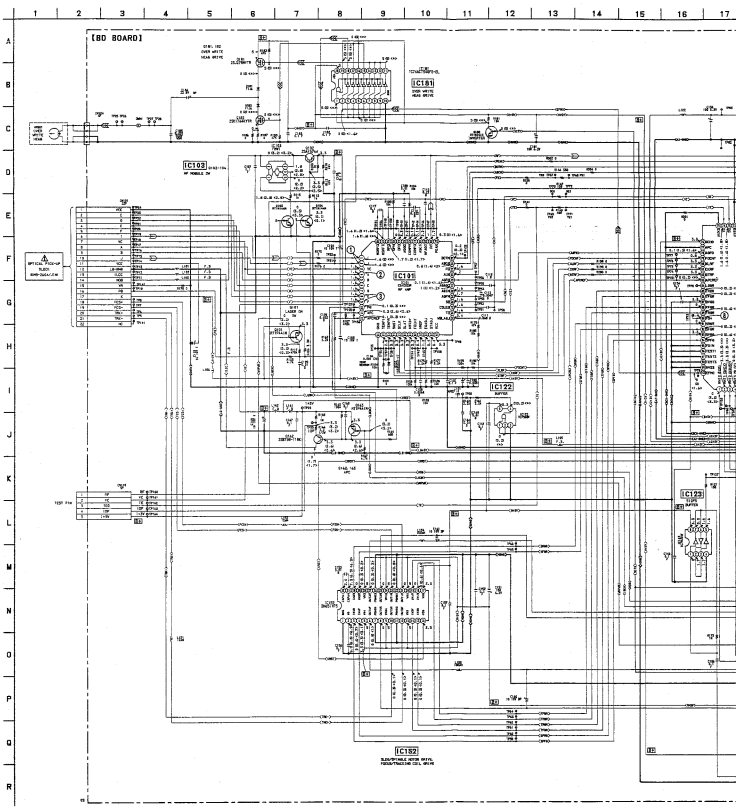
U5 POWER SWICTCH PC BOARD (NAETC-6003-1B/1C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switch	
S901	25035636	NPS-111-590P

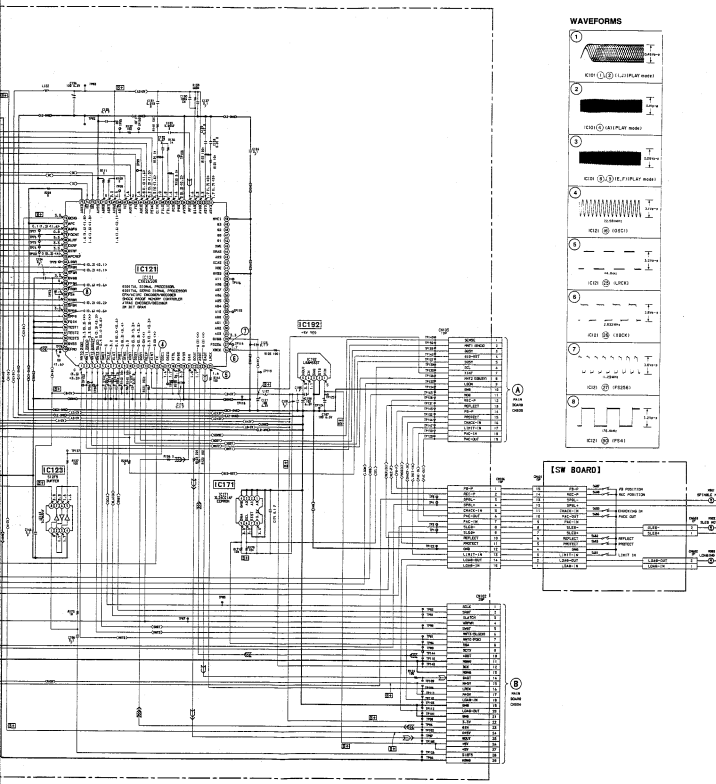
MD MECHANISM PARTS LIST

REF.NO.	PARTS NO.	DESCRIPTION
201	4628-167-01	Screw
202	4987-327-01	Insulator
206	1660-966-11	Flexible flat cable, Optical pick-up
207	A4699-615-A	BD pc board ass'y
208	1777-517-11	Flat cable (15 wire)
209	4987-910-01	Spring coil
251	A4672-138-A	Slider ass'y
252	4983-439-01	Bracket (Dumper)
253	3953-235-01	Oil dumper
254	4983-437-01	Slider (cam)
255	3342-375-11	Special screw (M1.7X1.4)
256	4979-896-31	Bracket (Gear)
257	4979-898-01	Gear (LB)
258	4979-899-01	Gear (LC)
259	4979-897-21	Gear (LA)
260	4979-885-01	Lever (Head up)
261	4979-906-01	Leaf speing (lead screw)
262	4984-556-01	Shaft (main shaft)
263	1661-774-11	SW pc board
264	A2304-200-A	Lead screw ass'y
265	4963-914-02	Lock (inserter)
266	3366-890-11	nylon lock (M1.4)
267	8583-028-01	Optical pick-up (KMS-260A/J1N)
268	4987-061-01	Spacer (lock)
HR901	1500-396-11	Over write head
M901	A4672-135-A	Spindle motor ass'y
M902	A4672-133-A	Slid motor ass'y
M903	A4672-134-A	loading motor ass'y
CN101	1766-508-11	FFC/FPC connector (22P)
CN102	1778-461-11	FFC/FPC connector (29P)
CN103	1778-460-11	FFC/FPC connector (19P)
CN104	1766-896-21	Connector (4P)
CN106	1770-698-11	FFC/FPC connector (15P)
CN110	1774-731-21	Connector pin (5P)
D101	8719-988-62	Diode,1SS355
D181,D183	8719-046-86	Diode, HUBTP
IC101	8752-074-77	IC, CXA2523R
IC103	8729-003-10	Transistor, PMW1
IC121	8752-378-54	IC, CXD2650R
IC122	8759-234-20	IC, TC7S08F
IC123	8759-242-70	IC, TC7WU04F
IC152	8759-430-26	IC, BH6511FS
IC171	8759-426-58	IC, XL24C01AF
IC181	8759-095-65	IC, TC74ACT540FS
IC192	8759-426-95	IC, L88MS33F-FA-TL
L101-L103,L105, L106,L121,L122, L161,L162	1414-235-11	Ferrite bead
L151,L152	1412-622-51	Coil
L153,L154	1412-059-51	Coil
Q101,Q163	8729-403-35	Transistor, UN5113
Q102	8729-026-52	Transistor, 2SA1576A-T106-QR
Q103,Q104	8729-014-06	Transistor, RN1307-TE85L
Q162	8729-101-07	Transistor, 2SB798-DL
Q180	8729-907-00	Transistor, DTC114EU
Q181	8729-018-75	FET, 2SJ278MY
Q182	8729-017-65	FET, 2SK1764KY
CN601	1770-698-11	FFC/FPC connector (15P)
CN602,CN603	1778-638-21	Connector pin (2P)
S681	1572-467-61	Push switch (1 key), Limit in
S682	1692-377-31	Push switch (2 key), Reflect
S683	1692-847-21	Push switch (3 key), Protect
S685	1572-467-41	Push switch (4 key), Chacking in
S686	1762-621-21	Push switch (5 key), Pack out
S687	1572-688-11	Push switch (6 key), Rec position
S688	1762-621-21	Push switch (7 key), Rec position
#1	7627-852-68	Special screw (+P 1.7x6 type 3)
#2	7627-552-08	Special screw (+P 1.7x2.5 type 1)
#3	7621-255-45	Special screw (+PTT 2x6 S)
#4	7621-255-10	Special screw (+BVTT 2x3 S)
#5	7627-555-17	Special screw (+P 2x2 type 3)
#6	7627-852-28	Special screw (+P 1.7x3 type 3)

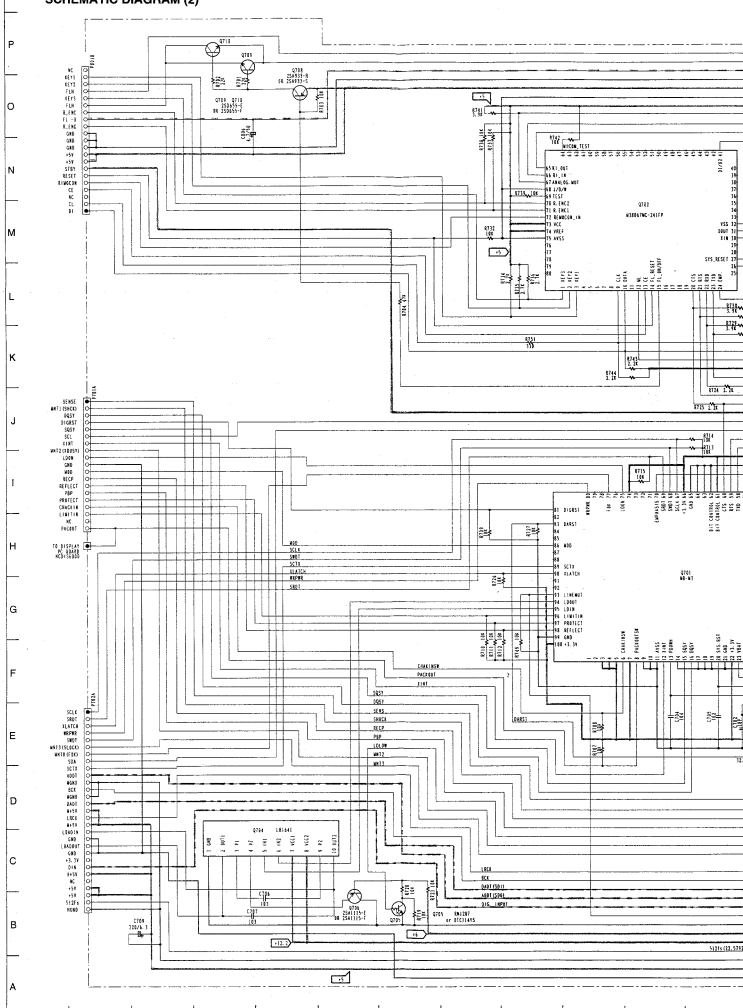
SCHEMATIC DIAGRAM (1) BD SECTION

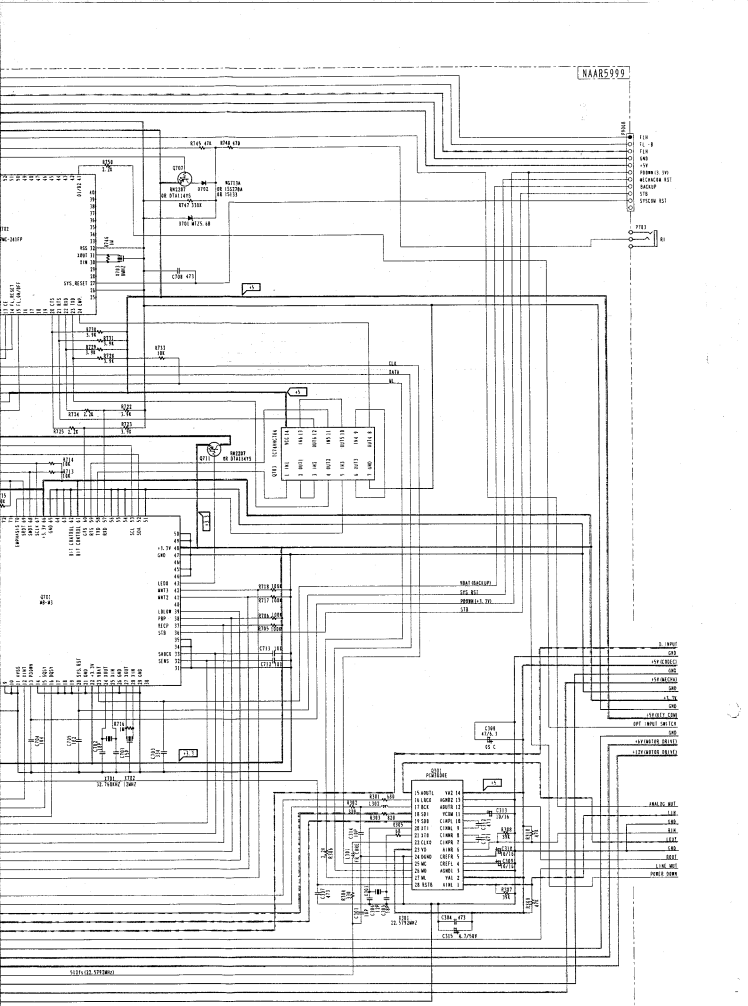


NOTE: THE COMPONENTS INENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.


WAVEFORMS
IC121
IC192
IC171
IC123
【SW BOARD】

SCHEMATIC DIAGRAM (2)




NAAR5999
11
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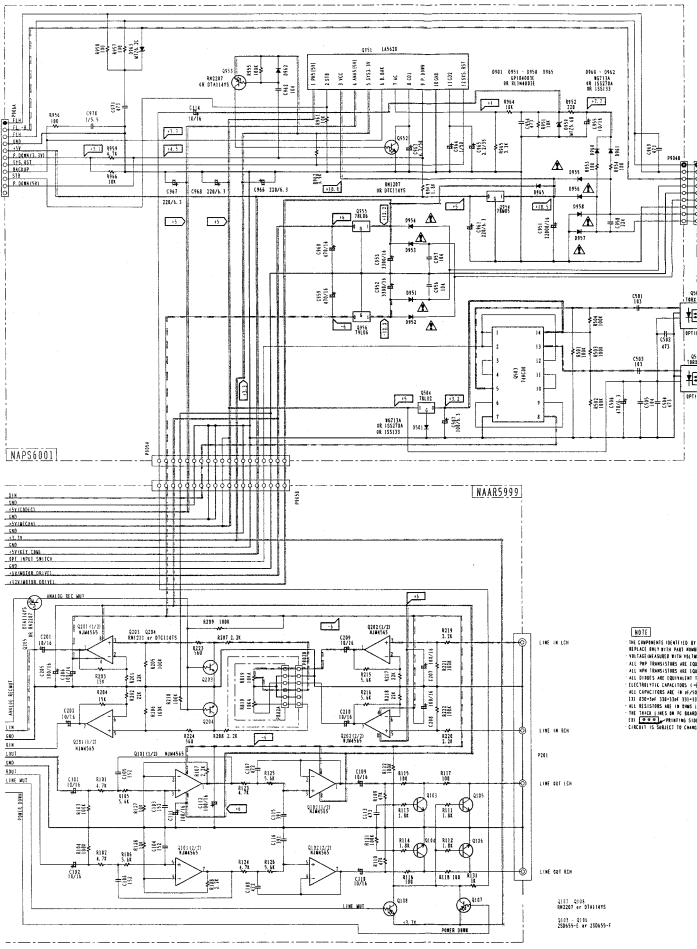
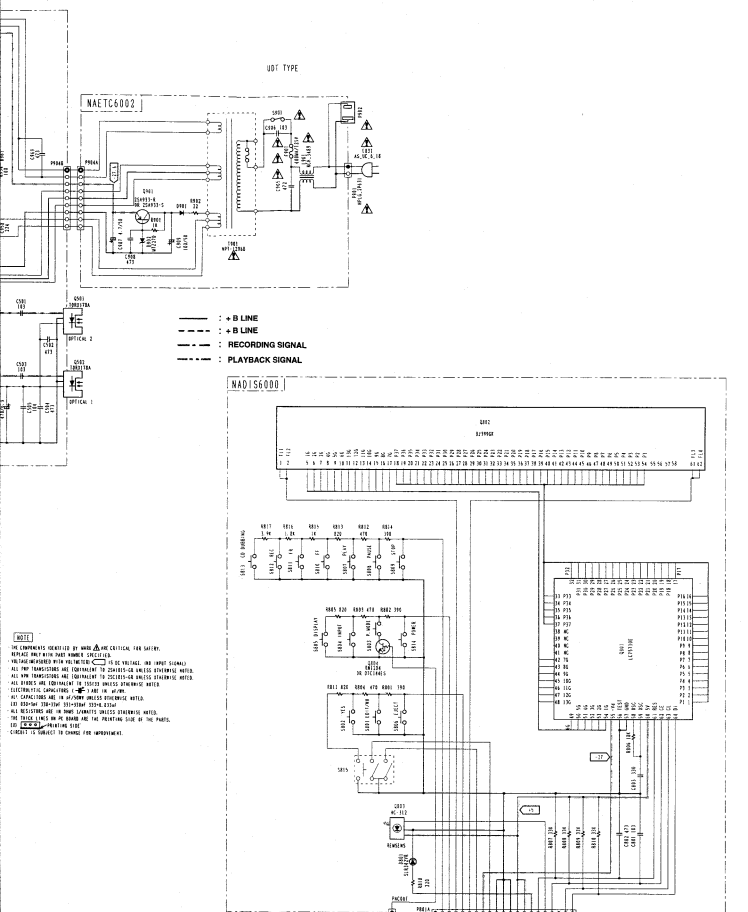
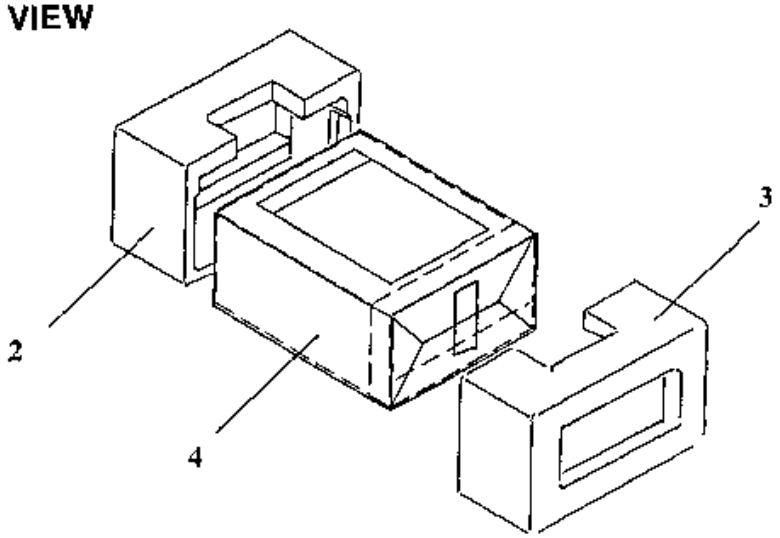
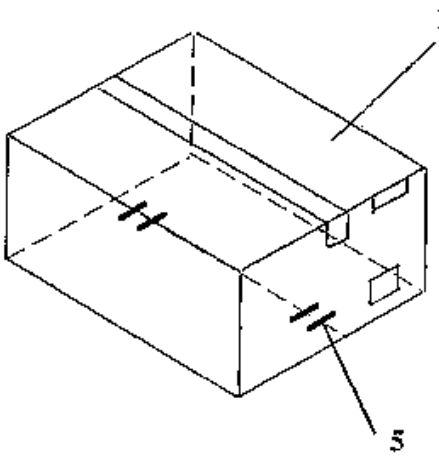
SCHEMATIC DIAGRAM (3) DISPLAY / POWER SUPPLY SECTION




UDT TYPE
NAETC6002
NADIS6000
: + B LINE
: + B LINE
: RECORDING SIGNAL
: PLAYBACK SIGNAL
NOTE
THE COMPONENTS IDENTIFIED BY MARK ▲ ARE CRITICAL FOR SAFETY.
REPLACE ONLY WITH PART NUMBER SPECIFIED.
VOLTAGE MEASURED WITH VOLTMETER (10 DC VOLTAGE, AND INPUT SIGNAL)
ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
ELECTROLYTIC CAPACITORS : (μF) AND (V). μF/V.
ALL CAPACITORS ARE IN μF/50V UNLESS OTHERWISE NOTED.
ALL RESISTORS ARE 1/4 OHMS 5%MASTIC UNLESS OTHERWISE NOTED.
THE TRACE LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
THE CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

PACKING VIEW





PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	29053137	Carbot box <S>
	29053138	Carbot box <B>
2	29091788A	Pad (F)
3	29091789A	Pad (B)
4	29100123C	Poly Bag 550x430
5	282321	Staple
	29342413	Instruction manual, E
	29342414	Instruction manual, U3(FSI) <P>
	29342415	Instruction manual, U3(GSwD) <P>
	29342416	Instruction manual, T <PT,DT>
	29355262	Instruction sheet ,U8
	29355250	Instruction sheet, U8(NCS-1P)
	29100097-1AY	Poly Bag 320x250
	2010098A or 2010326Y	Cord AS
	2010200	3.5 mm Plug, cord AS
	2050036A	Cord AS, NCS-1P101
	24140301	Remote control, RC-301MD
	3010054	Battery, UM-3
	29362036	Label(EX)
	29361573	Label, (PE-LD)

NOTE: <S> Silver model only
<B> Black model only
<P> 230V model only
<PT> Asian model only
<DT>Taiwanes model only

ONKYO CORPORATION

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